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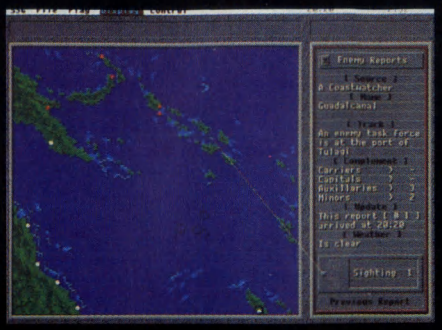

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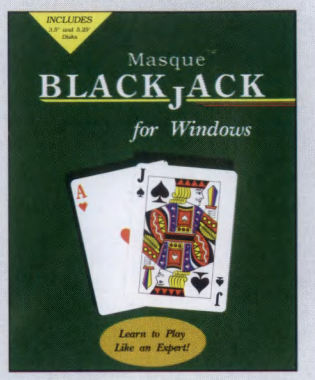

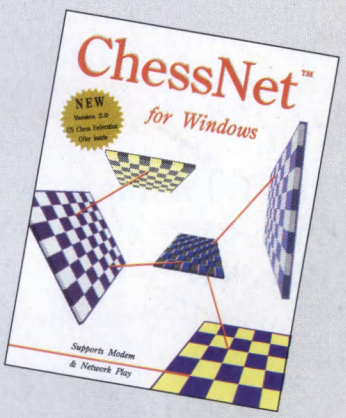

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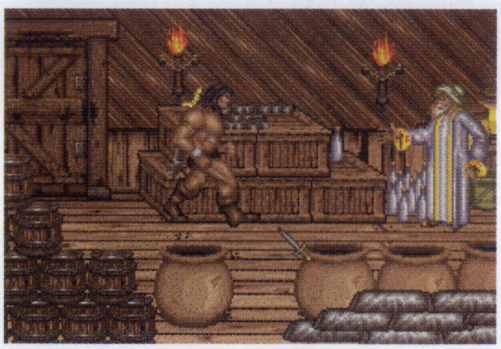

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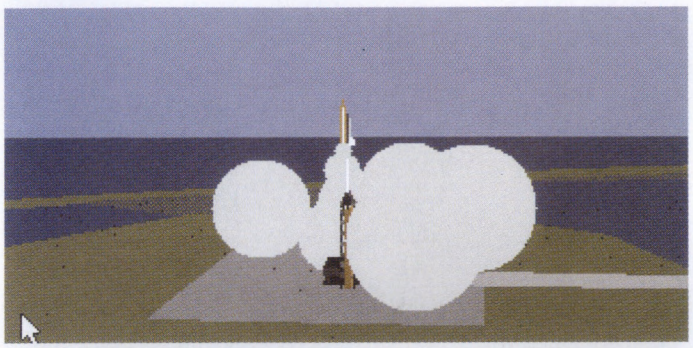

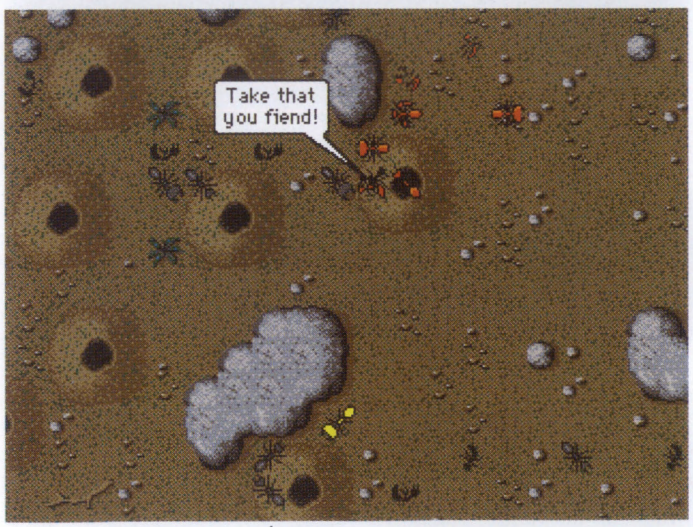

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Bad Max

Lives, companies and yachting holidays off Tenerife have all been ruined as the Robert Maxwell scandal continues unabated. But what draws the old rogue into the remit of this magazine? Like a creature from the deep it seems his tentacles were everywhere: they extended even into the heart of UK software house Mirrorsoft, which is the licensee of many US products, including **Falcon 3.0.**

At the time of writing the company is in the hands of an administrator, just a few rungs on the ladder below the receiver. Already several offers are on the table for the company including a management buy-out.

US software house, Spectrum Holobyte, also had Maxwell connections; it is one of the Lichenstein group of companies that Maxwell had a hand in setting up. Luckily this puts some distance between the company and the financial shenanigans of the late Cap'n Bob. It would have been almost too much to bear to see **Falcon 3.0** finally emerge only to see it grounded by the flotsam currently spewing from the bad ship Maxwell.

Vapour trail

Presenting this month's vapourware top ten.

1. **Dungeon Master** (FTL) for the PC. Ha! Ha! Ha!
2. **Billy the Kid** (Ocean). Meanwhile back on the ranch...
3. **Ancient Art of War in the Skies** (Brøderbund). Now *very* ancient.
4. **Scrabble Enhanced** (Virgin). Lost for words
5. **Conspiracy** (Accolade). Indeed.
6. **Traders** (Linel). Crash, crash, crash.
7. **Kaiser** (Linel). Has old Bill got the hump?
8. **Third Reich** (Avalon Hill). A ridge too far?
9. **NFL Challenge II** (XOR).
10. **Sim Earth** for the Amiga (Maxis). Off the planet.

Bubbling under: **Planet's Edge** (New World). Other candidates/corrections for next month's chart gratefully received.

Culture schlock

A press release arrives advising that UK 'cultural' station, Channel Four, will shortly be screening a series based on computer games entitled *Gamesmaster*. One segment of the show will feature various personalities playing computer games that have some tenuous connection with the way they earn their living. Thus viewers can look forward to watching footballer John Fashnau play **Manchester United Europe**, boxer Gary Mason play **Sonic Blaster** (well, I did say the connection was tenuous), tennis player Annabel Croft take on **Pro Tennis Tour II**, and Pat Cash and his missus try out baseball.

Despite sniggering in some quarters, this is definitely a concept with endless possibilities. But why should it be limited to sporting nonentities? Let's wheel out the big names to evaluate simulations relevant to their real life experience. Who better to assess the merits of **Leisure Suit Larry** than Edward Kennedy Smith? John Poindexter would have been a natural for **The Lost Admiral**, and could Central Casting have come up with a more appropriate candidate to review **Covert Action** than Ollie North?

Margaret Thatcher could offer us the benefit of her experience by writing a hint book on **Mega lo Mania**, while Spectrum Holobyte might do a lot worse than to get a few words of wisdom from Soviet superstar Boris Yeltsin on its forthcoming **Crisis in the Kremlin**.

An interesting variant presents itself here: why not invite people to try a game that is exactly the *opposite* of everything they stand for? Imagine, for example, the sight of Britain's 256-grey-scale Prime Minister John Major trying out **7 Colors**! Other suggestions gratefully received.

Anything vous can do...

When it comes to junk journalism the UK (leisure software division) is the world champ, but hold onto your onions, for the French have just put in a serious bid for the title.

At the 'prestigious' *Tilt d'or* awards in Paris the 'best strategy game of the year' prize went to Microprose's **Civilization**. The awards were presented during the first weekend of December (a week before the game shipped), add a month for the polling and admin involved and you almost arrive back at the time when co-designer Bruce Shelley wrote in this magazine: 'It is the middle of October and the team is working hard. Sid is adjusting algorithms, fixing bugs.' *Encroyable*, or what? ❑

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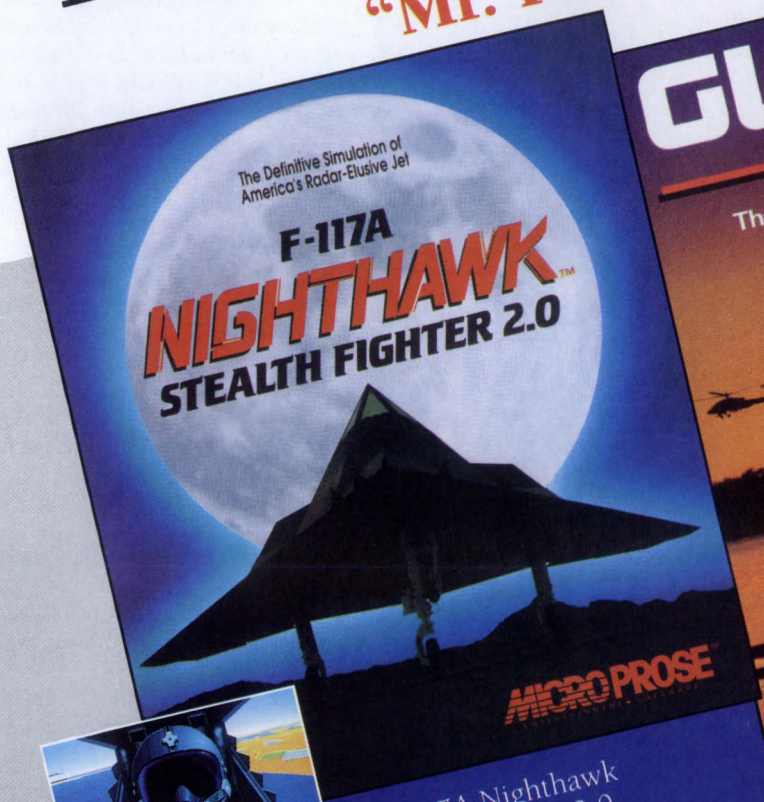

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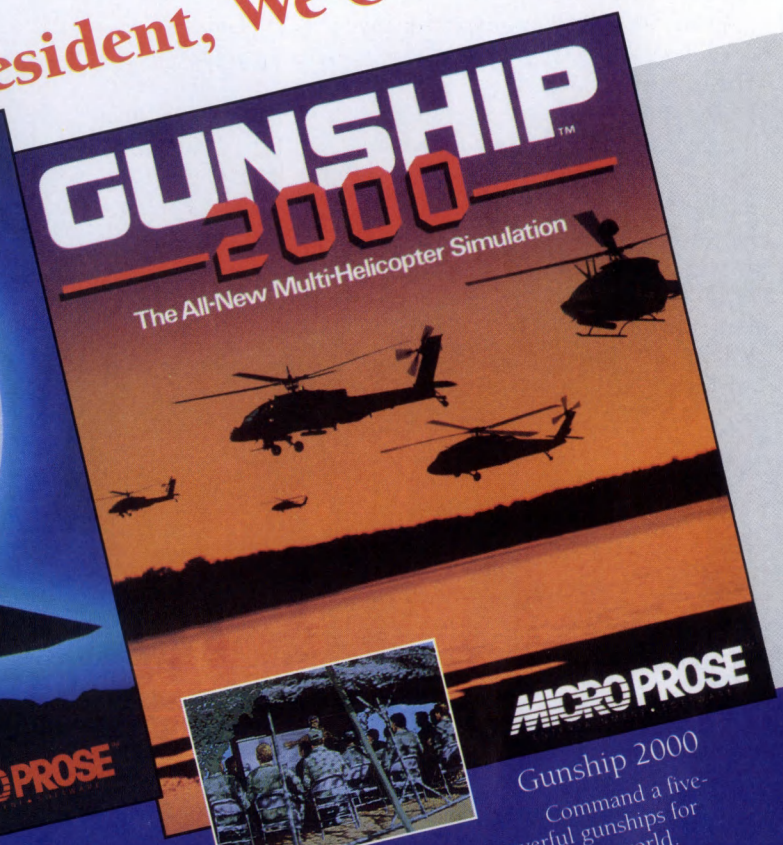
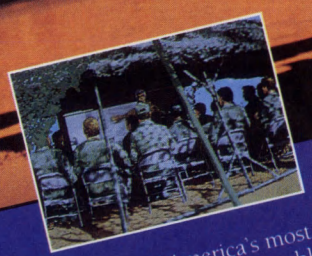
*Software Publishers Association





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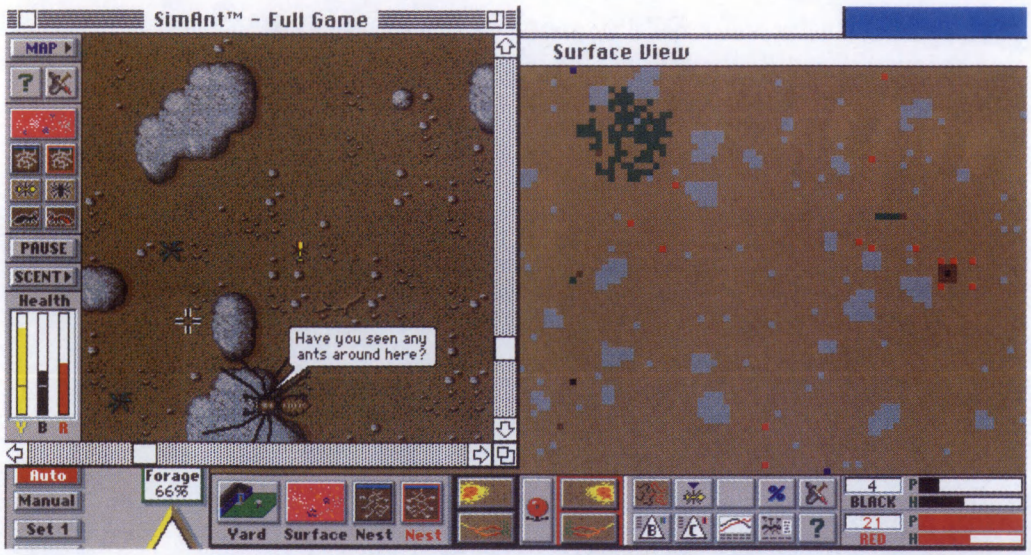


THE THINK TANK

Peter Szymonik avoids getting frantic over Sim Ant

The key to winning **Sim Ant** is a successful balance of strategy and resources, just as it is in **Sim City** and **Sim Earth**. The only difference is that this time the resources are the ants themselves and the strategy lies in controlling their actions and behaviours.

Sim Ant is played in two stages. In the first stage the player has to conquer the first patch of land by destroying the red ant colony and killing the red queen. After this, new black ant queens can be produced and sent across the yard to start colonizing new patches of land. From that point on, the game takes on a new dimension since the player no long needs to win each and every patch of land.

In the second stage of the game, the computer takes over the action on the tactical level while the player concentrates on taking over the house and the entire yard. In essence, the player becomes the collective black ant intelligence and only needs to jump into areas that need a guiding hand (or ant.)

Winning the first patch of land is perhaps one of the most difficult parts of the game. Be prepared to watch the 'possessed' yellow ant die a cruel death many times, but it's all for the good of the colony. The best thing to do is to immediately swap bodies with the first soldier ant the queen produces. Soldier ants are much stronger than worker ants; they win a lot more fights, and don't seem to need food as often.

Concentrate on grabbing as much food as possible for the colony. There is only so much food to go around and the more the red ants get, the less there will be for the black ants. The best way to get a lot of food in one trip is to recruit 5–10 ants and head for the nearest blob of food.

After arriving there in one piece (hopefully) release all of the recruits. Each of them will grab a piece of food and head back to the nest by following the scent trail the yellow ant left behind. If it seems that the red ants are taking more than their fair share, drop some alarm scents near the food and leave a couple of soldiers there to guard the pile.

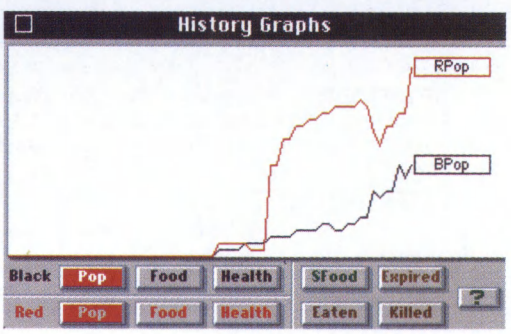
The behaviour and caste windows are especially important. Don't create any breeder ants until the first patch has been conquered, they're completely useless until that point. Its best to set the caste window to a 60:40 ration of workers to soldiers.

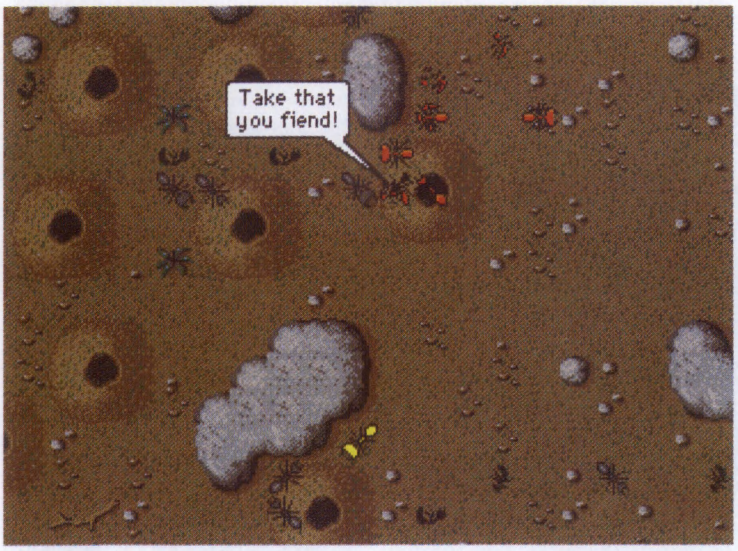
More important is the behaviour control window. Pay special attention to nursing. Without enough ants nursing the queen and the larvae, the ant eggs won't be hatched and the queen might even starve to death! (This happened to me a few times and the cause of death left me totally baffled until I realized what was wrong.)

It's easy to get so caught up in all the action and detail of **Sim Ant** that something important is missed or forgotten. Another item that is often over-looked is that the yellow ant is not the centre of attention – the queen ant is! Spare no ant in protecting her life, lose her and the game is immediately over.

The nest should be designed with an intricate series of tunnels and a lot of dead-ends. If the red ants breach the black ant defences in an attack, this forces them to spend valuable time searching for a well-hidden black queen. This allows the black ants enough time to regroup before the attackers find the queen.

Another excellent defensive strat-





egy involves piling rocks around the entrances to the nest. Build a little fort and post some soldier ants in alarm mode nearby to create the first line of defense against a red ant attack. (Rocks can also be used to plug up red ant holes!) Be careful not to place the black queen too far down in a deep nest, nothing is more tragic than watching the queen drown during a rainstorm!

By carefully preparing for the rest of the game, the colony will soon be well established and humming like a well oiled machine, until something goes wrong. That something could be a nasty red ant or spider attack. A good defence will usually thwart any red ant attack, but how about the spider? The spider can be killed, but it's not easy and costs a lot of ant lives.

I'll run through a spider attack because its good practice for the assault on the red ant lair.

Ants are communal in nature and they find strength in numbers. A single ant can't do much damage, but when they work together as a group, ants can be unstoppable. Before starting any attack, be sure the yellow ant is a soldier ant. Set the yellow ant's health warning bar to a setting near the top of the scale. The ant will need food more often, but will also be much stronger in a fight. Recruit a minimum of 40–50 ants – the more ants, the better, but be careful not to strip the nest's defences. A red ant attack on the black ant colony while the black ants are away can be devastating.

Once the yellow ant is surrounded by recruited black ants, start a slow march directly towards the objective, the unsuspecting spider (it's pay-back time.) Keep the march orderly – move too fast and the other ants won't keep up, leaving the yellow ant exposed and vulnerable.

One trick is to swap bodies with an ant towards the rear of the pack as the battle begins. Dying during a march releases the recruited ants, and that means starting all over again from the black ant nest. This works the opposite way as well. Find and kill the red ant leading an attack and the red ants will disperse!

Surrounded by the black ant army, the spider quickly succumbs to the swarm. This same type of attack will also work on the wandering caterpillar, except it won't kill any ants and turns into food when it dies! Although the spider can be killed, be prepared for a nasty surprise if four or five are killed in succession. I won't spoil the surprise since it is an undocumented feature. Give it a try and see what happens.

After some practice on the spiders, it's time to go after the red ants. This time there are more options. The objective is the red ant queen: kill her and the rest of the colony is doomed. While the rest of the ants are battling it out above ground and in the tunnels, try a sneak attack by burrowing into the nest and heading straight for the queen. The rule book mentions another strategy, climbing into the red nest and digging holes deep into the ground. There is a chance that the red queen will wander too far down and drown in the next rainstorm, but this takes too long.

The game changes dramatically after the first patch is won (the end of the quick game). Now the objective is taking over the house and defeating the red ants across the entire lawn. This may appear to be a monumental task, but the game actually moves along quite nicely. Once the first patch is won, the new breeder ants start migrating to unpopulated patches and the computer starts doing most of the work. Each new colony will start to develop and improve on its own; the player only needs to jump in take control when the colony is in dire need of help or to move things along.

This is where the game becomes a bit unglued. There is no real strategy involved at this point and each game is relatively the same. The black ants head straight for the house, take it over, and then surround and mop up the red ants in the north. This may sound like a complete over-simplification, but that's really all there is to it. Surprisingly, there is no difficulty setting and while the red ants can be pretty tough to beat in some patches, the black ants are definitely favoured. Once I was even called away from the computer for a few hours and returned to find that the black ants had almost won the game all by themselves!

This is not to say that there isn't any challenge in the game, there is, but it just seems as if the black ants can never lose unless the player makes a lot of mistakes. This only slightly detracts from the game as a whole since it is a ant colony simulation with lots to explore and lots to experiment with aside from the actual game itself. The best strategy in **Sim Ant** is to read the well-documented manual to enjoy a few hours of fun and colony management. ❑

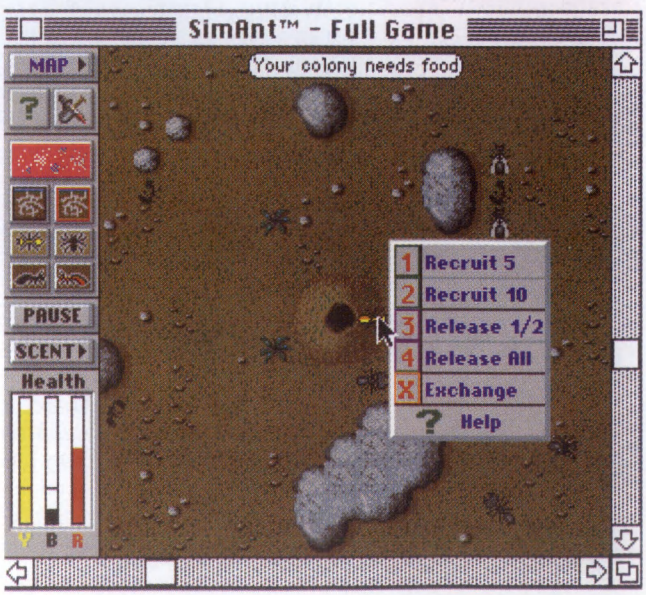
SIM ANT

Designed by
Will Wright

Published by
Maxis

UK distributor
TBA

Systems
Mac; PC version due in the US and UK in February



Wordtris

Lost for words

By Jack Schofield

The greater the game, the harder it is to write a sequel. **Wordtris** is the latest attempt at producing a follow-up to **Tetris**. It comes 'from the **Tetris** people, Spectrum Holobyte' – but not from A Pajitnov and V Gerasimov. It does have similarities, including the gratuitous use of Russiannic pictures. But, sadly, it's nothing like as compulsive.

Designed by
Sergei Utkin and Vjacheslav Tsoy

Published by
Spectrum Holobyte

Systems
IBM PC

PC graphics
VGA, EGA, CGA, Tandy 1000 16-colour, Hercules mono

Supports
Adlib, Roland, Sound Blaster sound boards; keyboard, mouse and joystick

Wordtris is a falling-block game, but all the blocks are square and, like **Scrabble** tiles, carry letters. The aim is to place tiles to form words of three or more letters. Make a word and it disappears, leaving room for yet more falling blocks. Simple, eh?

Well, up to a point. It's not so easy when 10 tiles contain four C's and four K's, or when being blitzed with a Balkan recipe for alphabet soup. TRT KRK V PRST? Anagram your way out of that, matey.

Instead of falling to the bottom of the well, the letters 'float' on a sort of notional water. One tile falling on top of another pushes that letter down one level. When the column hits bottom, tiles start piling up above the surface, and suddenly it's a race against inevitable defeat.

Not all tiles have letters. Some are labelled with ? – they're the equivalent of blanks in **Scrabble**; they turn into whichever letter you press on the keyboard. Sometimes eraser tiles fall: these can be used to free up a blockage or wipe out a troublesome V or J. (Usefully, a ? can be turned into an eraser by pressing the backspace key.) Some tiles are coloured gold: if, on landing, they complete a word, that word scores double.

Scoring, again, is somewhat like Scrabble. The A, S, and N are worth one point each, the K is five and the P is three (though the values are not marked on the tiles) so SPANK is worth 10 to start. It's a five-letter word, so the base score is 5*10 or 50. This gets increased according to the facilities being used. Turning off 'show next letter' makes each word worth 25% more. Turning off the 'repeat words' feature makes each word worth twice as much. Playing in advanced mode doubles the word score again, while playing in expert mode triples it.

Making a magic word of five, six or seven letters earns the value of every tile in the well, and all the tiles disappear. It's the **Wordtris** version of an extra life.

Words are checked against a Houghton Mifflin list of more than 60 000. I was surprised by some of my accidental successes such as LEIS (I've never been to Hawaii), PRO, RAD and ZIT. The selection is skewed enough to give American players an advantage, though UK users can add their own words.

The problem with **Wordtris** is that it's moderately interesting for quite a long time – even my first game lasted more than half an hour – and after that it gets impossible. The more words you make, the faster the letters fall. The first 100 words are not too bad, on novice level, but soon after that it gets too fast to cope – at least, it does on my 25MHz 386. **Tetris** suffers from the same problem: either it goes on for ever or the maximum score is set by the clock speed of the PC used.

I didn't even have to evolve much of a strategy. I just work alternated consonants and vowels, putting likely openers (B, C, F, H, W) at the front, likely enders (D, R, S) at the back, and versatile ones (G, N, P, T) in the middle. Large numbers of words have this general pattern: BATED, DARES, FUSED, RIDES, HONED, PALER, ROTOR, VOTER and so on. If you get too many consonants on top of one another then one vowel might clear them by making a word vertically: EGG, ILL, ERR, ODD and so on.

Spectrum Holobyte has tackled the problem by supplementing one-player **Wordtris** with four sparkling variations offering competitive, co-operative, tournament and head-to-head play.

In competitive and co-operative **Wordtris**, two players play in the same well. One controls red blocks and the other controls blue blocks, which fall at the same time. In the competitive version, players try to complete each other's words and the one with the highest score wins. In the co-operative version, both players combine to produce the highest possible score, low ones providing grounds for divorce.

Top dog

In tournament **Wordtris**, up to four players play the same single-player game in sequence to see who gets the highest score. Or, of course, one player plays the same game up to four times. Either way, it might be best to select one of the time limits – two, five, 10 or 15 minutes – or it could take all evening.

Two computers are linked for head-to-head **Wordtris** and two players play the same game at the same time. The computers can be connected by a serial cable (COM1 or COM2 only), by Hayes-compatible modems (1200bps or faster), or a Novell network. Two different copies of **Wordtris** are needed so I didn't try this variation, but it sounds like fun.

When it comes to basic **Wordtris**, however, I suspect it may be done better. There are, after all, dozens of Tetris clones, and I play one in preference to the official game. In a year or so, I might be able to say the same about **Wordtris**. ❑

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Battle Isle

Science friction

By Brian Walker

Designed by
Blue Byte

Published by
Ubi Soft

Systems
Amiga, ST; PC version to be released in the first quarter of this year

PC graphics
256-colour VGA, EGA

Supports
Amiga and ST joystick only. PC version supports a Microsoft compatible mouse

Players
1–2

Notes
Scenario disks are planned for the future

The German programming team of Blue Byte had already produced one of our favourite lunch break games in **Pro Tennis Tour 2**, so the arrival of **Battle Isle** was greeted with some eagerness by the boys and girls at *Strategy Plus*.

The colourful introduction and sub Kraftwerk soundtrack quickly established the sci-fi background of the game world, which has something to do with a bit of aggro on the island of Chronos, but we needn't detain ourselves with the small print of that here.

Kill everything

More to the point, this is an abstract wargame on a tactical level. Thirty-two maps are provided, equally divided between all human play and human v computer. The objective is seemingly the annihilation of all opposing units. I say seemingly, because the manual also states that victory is possible by invading the opponents home base, though in the final points tally further on in the manual this victory condition is not addressed – one of the many anomalies in the documentation as it turns out.

Another oddity that is that the number of turns may be determined by the player, which is reasonable enough, however, when the end is nigh then the winner is the player with the *most* units left irrespective of the quality of these units.

At the start of each scenario players receive a number of predefined units. All commands, on the Amiga version at least, are issued using the joystick. Giving a command involves hitting the fire button and moving the joystick to bring up an icon. There then follows the somewhat more tricky task of trying to position the cursor on a particular hex.

Within this constraint movement is handled quite neatly: on selecting the appropriate icon an illuminated hex grid pops up showing the movement range of the unit in question. Clicking on the desired hex will move the unit there automatically.

A turn consists of two phases: movement and action. The latter is the combat phase, possible when two units are adjacent.

At this point normal procedure would be to describe how combat is resolved. Instead I regret to have to report that I haven't got a clue. All I can say is that an arcade type screen pops up and the combatants fire at one another. Some get vaporized, some don't. No combat report follows. Nor is it possible to obtain a report on any enemy units even immediately after combat, which is illogical to say the least.

Each unit is rated five categories, but because there is no guide to how units interact with one another except on the most generalized level, these are of little use. Some strategy hints are provided, the gist of which is : attack in large groups and attempt to surround the opponent.

An Armed Forces Manual also comes with the program and spouts a lot of nonsense about 'combat consoles', 'tactical signs', and 'pictograms' none of which appear to be present in the game. The confusion is compounded by the split screen – apart from making things look terribly cluttered, this also allows observation of what the computer player is doing, thus eliminating any possibility of hidden movement.

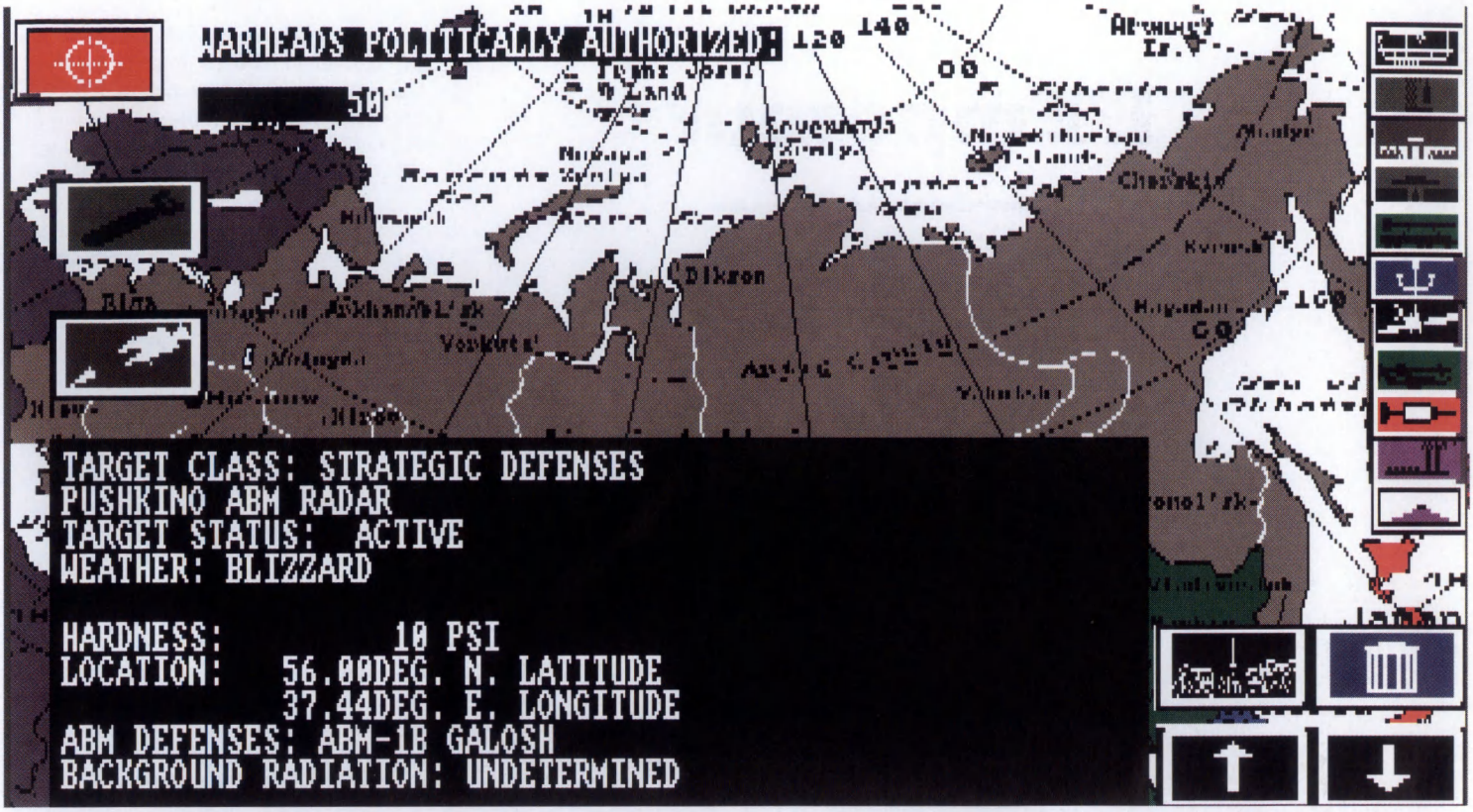
Unfortunately the player is stuck on the tedious first scenario until victorious, likewise on subsequent maps. This, like the cumbersome joystick interface and the split screen are inexplicable design decisions. Who wants to be forced to play a scenario that one is bored stiff with simply to progress to the next one?

Broken premise

The basic premise of **Battle Isle**, that of moving a small number of units over varying terrain with capture or destruction as the objective, is a sound one, but the implementation here is sadly lacking. QQP showed what can be done in this genre with **The Perfect General** and **The Lost Admiral** – both vastly superior games.

In fairness many of the scenarios described in the manual sounded more interesting than the one I was forced to encounter, but the messy interface and vague combat routines ensured that **Battle Isle** was not a location to which this silicon warrior would be returning. ❑

BRAVO ROMEO DELTA



ATTENTION... THIS IS NOT A DRILL!

During a major Soviet naval exercise, 50% of the ballistic missile subs are deployed to sea and a limited nuclear strike is launched on American targets. At 3:58AM NORAD picks up the first incoming nuclear warheads, targeted for US Air Bases, and with less than 6 minutes to impact.

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This concept of Escalation Control is the strategic policy embodied in the Presidential Directive 59 (PD-59) which states that the U.S should be able to initiate the limited or selected use of strategic nuclear weapons, and to control the escalation process in such a way that democracy would continue to "prevail" in the post-war world.

Single Shot Kill Probability (SSP_k)
Given a warhead yield (Y) in kilotons, accuracy in meters, and target blast hardness (H) in PSI, the following equation is used:

$$SSP_k = 1-(0.5)^x$$

Where x can range from:

$$x = (1340Y^{1/3} / Accuracy)^2$$

for soft targets (0-50 PSI hardness) to

$$x = ((438Y^{1/3}/H^{1/3})/Accuracy)^2$$

for hard targets (over 1000 PSI)

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*(From the **Bravo Romeo Delta** Designer's Notes)*

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L'Empereur

Napoleon's ambition

By Jamie Thompson

Kuo Shibusawa's long awaited Napoleonic epic has at last arrived. Anyone familiar with Koei's previous products – **Nobunaga's Ambition**, **Romance of the Three Kingdoms** and so on – will recognize the format of **L'Empereur.** In essence, it is the tried, trusted, and old Koei system transposed into a Napoleonic setting, in which the player takes on the formidable role of the great man himself.

Four scenarios are included in the game. In the first three scenarios only a single city is controlled, from which a number of commands per month may be issued. These include training men, requesting war material from the national reserves, and managing the economy of the city and of the officers under one's command.

All the major personalities of the Napoleonic period are represented – Ney, Soult, Wellington and so on. Each of them (including Napoleon) is rated according to their command abilities over infantry, artillery, cavalry, bridge building, diplomacy, finance, supply and such like. Each officer controls a number of troops, from 1–200 men, rated according to type, morale and training. When an officer is accessed, a historically accurate graphic of his face is displayed.

The economic state of each city has much less bearing on the game than the economics in the other Koei games – the most vital aspect is the condition and size of the army. This makes sense – fairly modern economies like those of the 19th century tends to run themselves. It is possible to throw a spanner in the works through over-neglect – watch out for those cities struck by natural disasters (which occur at random) such as plague, bad harvests and unseasonable weather.

In the fourth scenario, the big one, Napoleon starts as emperor (rather than commander-in-chief or first consul) and the game suddenly becomes more complex. In each quarter, Boney is allocated up to four governmental commands that regulate the economy of France as a whole, and its relationship to the other countries. Factors such as trade, alliances, war, taxes, supplies are covered here.

Adequate food supplies for the troops in each city are vital, as is sufficient gold to recruit and pay troops and improve the city. Napoleon can appoint members of his family to govern various cities. In these, the player has access to the 'officer commands', which offer detailed and direct control of the municipality. Other cities run themselves according to the 'non-player' officer in charge. Unfortunately, Napoleon can't actually order a commander to attack another city – a member of Napoleon's family or Napoleon himself must lead the attack.

Warfare is depicted in the same hex style used in other Koei games. When a city is invaded, a hexagonal grid map of the terrain is displayed, complete with swamps, hills, forest, rivers and so on. Forces consist of individual units of infantry, cavalry and artillery, led by their officers.

Combat is initiated by moving a unit next to another and attacking. Artillery can bombard at range. An improvement on the earlier hex war systems of **Nobunaga** et al is that orders can be given in any sequence to each unit, and there can be as many as 15 units a side. Naval engagements are also possible, but only in an abstract sense and only when naval *invasions* occur.

The game works quite well on a national level when dealing with other countries. A sense of the period is captured but unfortunately the transposition of the same game template from Koei's oriental simulations doesn't reflect Napoleonic warfare.

On a tactical level, none of the colour and pageantry of line and column, skirmishers, cavalry charges, musketry, the use of canister and ball for artillery is adequately represented. The armies might as well be men-at-arms, knights and archers. Nor is there a sense of grand Napoleonic strategy. The use of cities as nexus points for strategic movement and combat is confusing and unnatural.

Home turf

In Koei terms combat is about turfing stubborn defenders out of cities, not about outflanking the enemy, cutting his lines of communication, forming assault columns to shatter a centre or turn a flank, which means none of the essence of Napoleonic warfare is present. There are no forced marches, or 'retreats from Moscow'; even the victory conditions are absurd – to win the game, France must capture every city! Europe in the 19th century Europe is not the same as medieval Japan – Napoleon couldn't have been shogun of all Europe,. Napoleonic wars *never* ended in the total conquest of the enemy.

Several historically absurd situations present themselves in the game, for example it is possible to overrun Britain, and have the Duke of Wellington leading a French army in the conquest of Turkey! **L'Empereur** is, in essence, a game of unrealized potential. Its size and complexity tax the player rather than the artificial intelligence routines of the program. Definitely for lovers of the Koei game system, but not Napoleonic enthusiasts. ❑

Designed by
'Kuo Shibusawa'

Published by
Koei

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Philip Murphy whops the Yankees in SSI's No Greater Glory

SOUTHERN COMFORTS

Get ready to kick Union butt by setting the game up in historical mode with full intelligence. Set the difficulty level to historical. The aim is to destroy the Union's political support (by tiring it of the war) to such an extent that Lincoln fails in his bid to be re-elected at the end of '84 and thus the Confederacy gains independence.

Cabinet overview

During the cabinet overview and diplomacy phases, always try to ensure that all factions and areas are represented properly to avoid losing support. This is not always possible, especially when a reshuffle is needed, but keep in mind that if, for instance, Bell gains a reputation for incompetence in the Treasury, he can be shifted to the Navy without penalty (assuming that he hasn't already been incompetent there!).

The 'dead' job in the pack is peace commissioner: this should be reserved for any idiot who manages to mess up the posts of attorney general, navy, Treasury, England and France. Under no circumstances let anyone who is likely to make mistakes hold the war or state offices.

On occasions, transferring a politician from government to foreign affairs or vice-versa will be called for. This will certainly cause a temporary imbalance in appointments and a warning will be given. The warning, however, will only be given once! Don't forget to shuffle again at the next opportunity.

Civil affairs

The civil affairs phase should be straightforward. Follow the guidelines on page two of the manual. It seems worthwhile, however, to precipitate uprisings in any area where the enemy is suffering disturbances, regardless of the political strengths. Experiment a little here.

Capital relocation

The South has the opportunity to relocate its capital on turn two without penalty. Historically, Richmond was chosen but in game terms that would be a *big* mistake; the eastern border region is very volatile. Atlanta, Decatur and Corinth are playable choices, if somewhat nerve-wracking. Areas with ports can be similarly coronary-inducing. I found Fort Smith to be safest of all, especially as the scenario outlined here involves very aggressive play on the western side of the map.

Relocating the capital after this 'free shot' brings such a heavy political cost that I would always advise toughing it out. If the enemy is at the gates, the game is probably lost anyway; running from the capital will make sure it is.

Financial

In the financial phase, it is essential that as much money is raised from taxes and bonds as possible. The Confederacy will suffer roaring inflation no matter what the strategy, so don't try to be cute. Set the bond rate at 8% and leave it there. Taxes should be raised in easy stages every three turns (or so), but the Southerners are notoriously tight with cash. Don't take too many defeats in congress trying to stem this weakness. The negative points will be on the score-board at the end regardless; accept this and just try to keep the score down.

Fortunately, the Confederacy is much happier about sending its boys into battle than the Union. Start with volunteers, of course, but step up the call every other turn. With luck, the South should be fully mobilized (including the use of recruited blacks) while the North is still mobilizing the militia. Always try to produce about 93% of required supplies each turn; often this sort of production won't be available, but when it is, don't exceed it. The Confederacy is in enough debt without someone getting his sums wrong and supplies rotting!

Rail movement is exceedingly important in the strategic movement phase, so always increase the infrastructure by the maximum 5%. This can be costly, but I've found that it's better to take the debt; the alternative is to have troops in less than optimum positions. Generally speaking, the Confederacy will have more than half, but not quite two-thirds of the troop numbers of the Union; make sure that these men can be transported to where they are needed.

Naval building is also straightforward. Build as many cruisers as possible. This will preclude the production of runners completely, but since the plan is to have covert aid from England and France continuously, this is not a problem. Coastal and river forts should be built up to between 20 and 30; after that it seems to be a waste of time.

Designed by
Ed Bever

Published by
SSI

UK distributor
US Gold

Systems
IBM PC

PC graphics
CGA, EGA

Supports
Mouse, keyboard

Strategic movement

The strategic movement should be performed by the player, not the artificial intelligence system. The South has no naval or river movement, nor can it move its coastal and river forts. The only job the AI does is to move around troops and supplies, and it's not particularly good at it.

On the first turn, push all the troops in the Gulf Coast up into Memphis and Chatanooga. Similarly, everything in Tidewater and East Border should be transported to North Virginia, except for 2000 men left behind to capture Charlestown. Don't worry about Norfolk; 8000 local militiamen will rise up of their own accord and take the area for the Confederacy. Subsequent turns should be performed similarly with one notable exception. Get everything to the fronts, but leave defenders behind in Jackson and Savannah.

From turn two onwards, the Union will use naval transport to come behind the South's lines. Standing armies in Jackson and Savannah will cover all possible landing points in the Gulf Coast and Tidewater. The size of these armies is critical; too few and the Union will gain a foothold where it shouldn't have one; too many and the Confederacy will be outnumbered at the real fronts.

On turn two, leave armies of 6000 behind. Thereafter, have units equal in size to the last invasion force. Although outnumbered, your defenders will win against the naval assaults, if only because of 'home' advantage. A word of warning though; keep a close eye on the Union's naval builds. An upsurge in transports generally indicates a larger than expected sea assault. Usually, the North will increase the size of its assault gradually until it reaches about 16 000. Then, suddenly, it will jump into the twenties. Make sure the defending armies are ready for this!

Campaign

The war should be fought on two fronts; in the Northwest and East Border Regions. The initial objectives for the Confederacy must be the capture of St Louis, Paducah and Louisville in the west as these give a strong platform from which to pressurize Chicago, Cairo and Evansville.

In the east, the Union build-up of troops is so strong that it's just a matter of holding out for as long as possible. Eventually the Confederacy will be overwhelmed in North Virginia and fall back to Richmond. That will fall too with time, but good old Abe should be out of office before the Yankees get to Tidewater.

Generally, stick with the pecking order of the generals to avoid losing political support. That said, don't be afraid to ignore them if there's an important job to be done. For example, it's a big advantage to capture both Paducah and Louisville on the first turn. To do this, have 10 000 men in both Memphis and Chatanooga and give the commands to Jackson and Hood respectively. The more senior officers won't like it, but there's a war to be won.

Also, a battle which is clearly going to be decisive will occasionally present itself. Give the command to Robert E Lee, regardless of the pecking order. Lee is the best there is and if he's faced by one of the inferior Union generals, he can pull the most amazing results out of the hat.

The western front

Throw the troops at the enemy here. The defending army from Jackson (assuming it wasn't needed) should be pushed to Little Rock; the Little Rock troops go to St Louis, and the St Louis ones to Chicago or Cairo, turn after turn after turn.

In the Central region after strategic movement, there should be twenty-odd thousand troops in both Paducah and Louisville, and around 14 000 in both Memphis and Louisville. Again these just scroll up the map, pressurizing Cairo and Evansville. Don't be frightened to attack superior numbers. The South needs to tie up Union troops in, for instance, Evansville, so that those troops cannot support the Chicago/Cairo area. Cracks will appear in the Union defence, and gains will be made.

The eastern front

During strategic movement, get every available man from Tidewater and East Border into North Virginia and try to hang on. When pushed back to Richmond, attack North Virginia every turn, even if heavily outnumbered, as long as Norfolk is still in Southern hands. Fall back from there to an even split between Greensboro and Wilmington, and have both armies attack Richmond every turn.

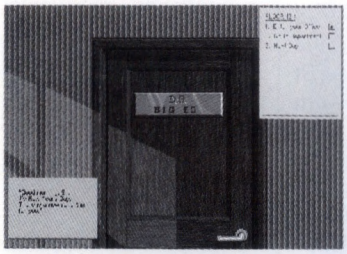
Diplomacy

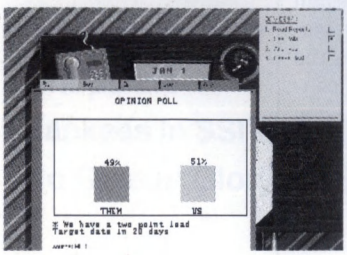
On the first turn, ignore the Secretary of State and entice both England and France into covert aid. After that, the method to use to get recognition depends on how the foreigners perceive the Confederacy's military potential. If things are going badly, try 'entice' (or, horror of horrors, bribe). If prospects are bright, use 'threaten' or 'coerce'. It's very difficult to get recognition but if achieved, Lincoln is certain to lose office.

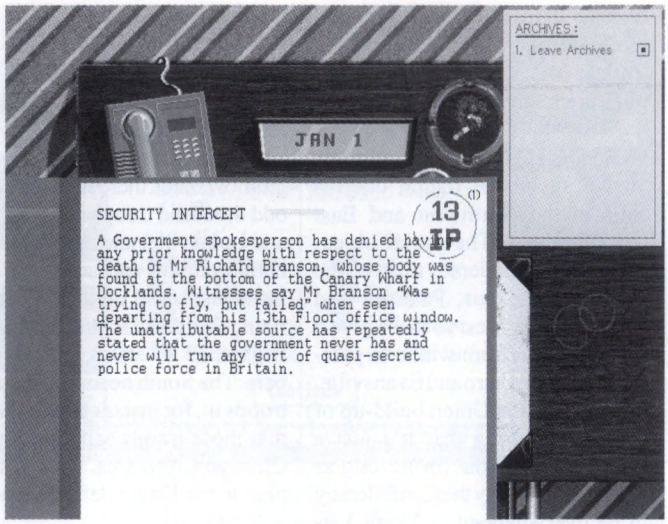
Movement is the key to the CSA's success. Keep going, hold on, and support for the Union will wither away. I fail to see how the Confederate player has a chance against the Union unless the full intelligence option is selected at the outset. Without it, the Union's naval assaults appear out of thin air!

Beckinbridge, Bell and Hunter are real no-hopers, yet all three must be employed to maintain support. I've no real advice here – just struggle through with them. Benjamin, despite his ability, can be unreliable, although the opposite is true of Rhett. In all the hours I've played, he's never been accused of incompetency, despite his rating of 2! ❑

In our next issue Jamie Thomson and the Union troops paddle down the Mississippi and attempt to explain the benefits of the equal opportunity program to General Lee.



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SECURITY INTERCEPT
13
A Government spokesperson has denied having any prior knowledge with respect to the death of Mr Richard Branson, whose body was found at the bottom of the Canary Wharf in Docklands. Witnesses say Mr Branson "Was trying to fly, but failed" when seen departing from his 13th Floor office window. The unattributable source has repeatedly stated that the government never has and never will run any sort of quasi-secret police force in Britain.

Floor 13

Room at the top

By John Harrington

Designed by
David Eastman

Published by
Virgin Games

Systems
IBM PC; Amiga and ST to follow in March

PC graphics
256 grey scale VGA, EGA

Supports
Adlib sound board; mouse and keyboard

Fancy being a civil servant? No? OK, how about a civil servant in charge of a top secret dirty tricks department, dedicated to keeping the 'establishment' in power and thwarting the enemies of, ahem, democracy? Sound a bit more interesting?

The headquarters of this covert group is located on the 13th floor of a prestige office block, hence the name of the game. Tucked away in a very private office is the director general (DG), the person who masterminds the operations of the dirty tricks department.

At the DG's disposal are a number of highly trained field agents skilled at nefarious deeds such as surveillance, undercover infiltration, assassination, disinformation and torture. All the DG has to do is use these resources to ensure the government's popularity remains high while maintaining the utmost secrecy. The last DG was unable to do this and had to retire. His retirement present was a free hang-gliding lesson from the thirteenth floor - pity he didn't have a hang-glider.

Communication with operatives is achieved via a series of screens meant to simulate the Floor 13 computer system, while the information supplied by the operatives is displayed in various formats, such as documents (complete with photos of suspects paper-clipped to them), transcripts of taped messages and the like. Mercifully the decision screens are menu driven; there is no need for pointing and clicking with a mouse.

John Major

An unusual feature is the absence of colour, the designer preferring to use 256-grey scale high resolution VGA. This gives a very crisp definition on the textual information and adds much to the atmosphere of a game about the bureaucratic world of the semi-mythical men in grey suits.

Throughout the game a number of situations arise and these develop in different ways depending on how the DG handles them. Each case has to be evaluated for the potential damage it might do to the government and a suitable response made. Overkill is likely to be as damaging as prevarication, and depending on how quickly each crisis is dealt with several issues may need dealing with simultaneously, which can lead to resources being stretched.

Periodically the DG's performance is reviewed and if a good job has been done then staff levels and slush funds are increased. A poor performance secures an invitation to resign or, in extreme circumstances where the wrong people have been upset, the DG is encouraged to take up hang-gliding like his predecessor. How this top secret organization remains a secret when so many of its employees end up splattered on the pavement outside its offices is one mystery of the game I failed to grasp.

Much of the appeal stems from uncovering the storylines, many of which are obviously based on real events or organizations. The actual game play itself is rather limited. Although there are always a number of decisions to be made each turn the choice of viable options is restricted to the same four or five actions, which brings the level of complexity down to that normally seen in public domain strategy games.

This limitation would not be so bad if the program offered lots of feedback on the success of the decisions taken but, apart from the interrogation option which often yields interesting information for analysis, the only indication of whether the right policies are being pursued is the rather crude one of the government's popularity index: keep it above 50% and all's well, let it drop below 50% and it's time to buy a parachute.

If the intention was to create a dry program that is as grey as its eye-catching (but inanimate) graphics then the designer has succeeded. However, the board game **Illuminati**, which appears to have been an influence on the game design, proves that a game of intrigue and power struggles by secret societies can be a good deal livelier.

Floor 13 requires a slog through a series of repetitive decision-making processes for the meagre reward of some mildly interesting plot developments. Frequent game saves are recommended if the full range of stories on the database is to be enjoyed as this is a tough game to do well at, thanks largely to the lack of meaningful statistics to analyze.

Floor 13 is long on atmosphere and short on excitement — nice idea, shame about the execution. ❑

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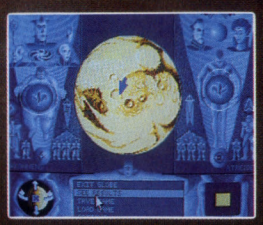

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Reader Service No. 58

Realms

Love thy neighbour

By John Scott

There have been a lot of games of this type lately: **Utopia**, **Mega lo Mania**, the less recent **Powermonger**, and the positively ancient **Populous.** When I say that I liked **Powermonger** less than any of the other games I've quoted, I hope it's understood that I'm making a subjective statement of personal preference, rather than an objective critique of the game. I only mention this at all because in playing **Realms**, the feel of the game was more like **Powermonger** than any of the aforementioned games.

Realms' setting can be explained briefly: the player's father, the king, has died and anarchy is the order of the day. But the player has received the divine mandate to rule in his daddy's place. He knows that there can be only one ruler, and that it's damn well going to be him.

The immediate goal is survival. The long-term goal is to rule the known world, whose population consists of elves, dwarfs, orcs, amazons and humans. There are eight scenarios of increasing difficulty to help potential rulers get to grips with this fairly complex game.

The game is controlled by switching around six screens. Thus one can be inside the fortress, on the field of battle, inspecting the army, in a city, checking out the game screen, or dealing with the disk based functions.

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Citizen levy

Designed by
Steve Turner

Published by
Virgin Games

Systems
Amiga, ST; PC version due out next month

PC graphics
VGA, EGA

Supports
Adlib sound board

Inside the fortress is where the player develops an overall strategy and monitors its progress. From here it is possible to examine the world map, checking on friendly and enemy cities, the locations of armies and so on. It is also possible to examine the tax routes by which cash flows to the capital and to alter it to optimize efficiency. Speaking of cash, this is also the screen used to alter the rate of tax, balance the treasury, and so on.

Moving on to the battle screen,it is here that the opposing armies give each other some GBH. The outcome of the battle depends on all sorts of factors, such as morale, terrain, and battle formation.

Unlike some games of this type, the player retains considerable control over his troops. The troops themselves can be a pretty varied lot. In order to control the type of warrior, the army screen is accessed.

Soldiers can be heavily armoured but slow moving, or lightly protected but mobile. They can be armed with a variety of weapons, including missile weapons. All this gear costs money, of course, plus the troops will want to be paid. Needless to say, the better equipped and funded they are, the better will be morale and recruitment of replacements.

Units can also be given permission to loot cities instead of receiving the usual wage, and in fact they expect to be allowed to loot sometimes.

Cities also require careful management, and this is carried out via the 'cities' screen. This screen provides immediate information on all vital aspects of city life including its current size, amount of cash available to spend. With this cash grain can be bought, or land (to allow growth to continue). In case of recent plague (which spreads along the trade routes) it may be necessary to spend heavily in order to restore the health of the populace.

The city itself can be better defended by building walls of wood or stone, and infantry or cavalry can be recruited. From this screen it is also possible to give or receive tribute, and if a city surrenders following a siege, it is possible to loot, ravage, or even raze the city or, of course, to annex it.

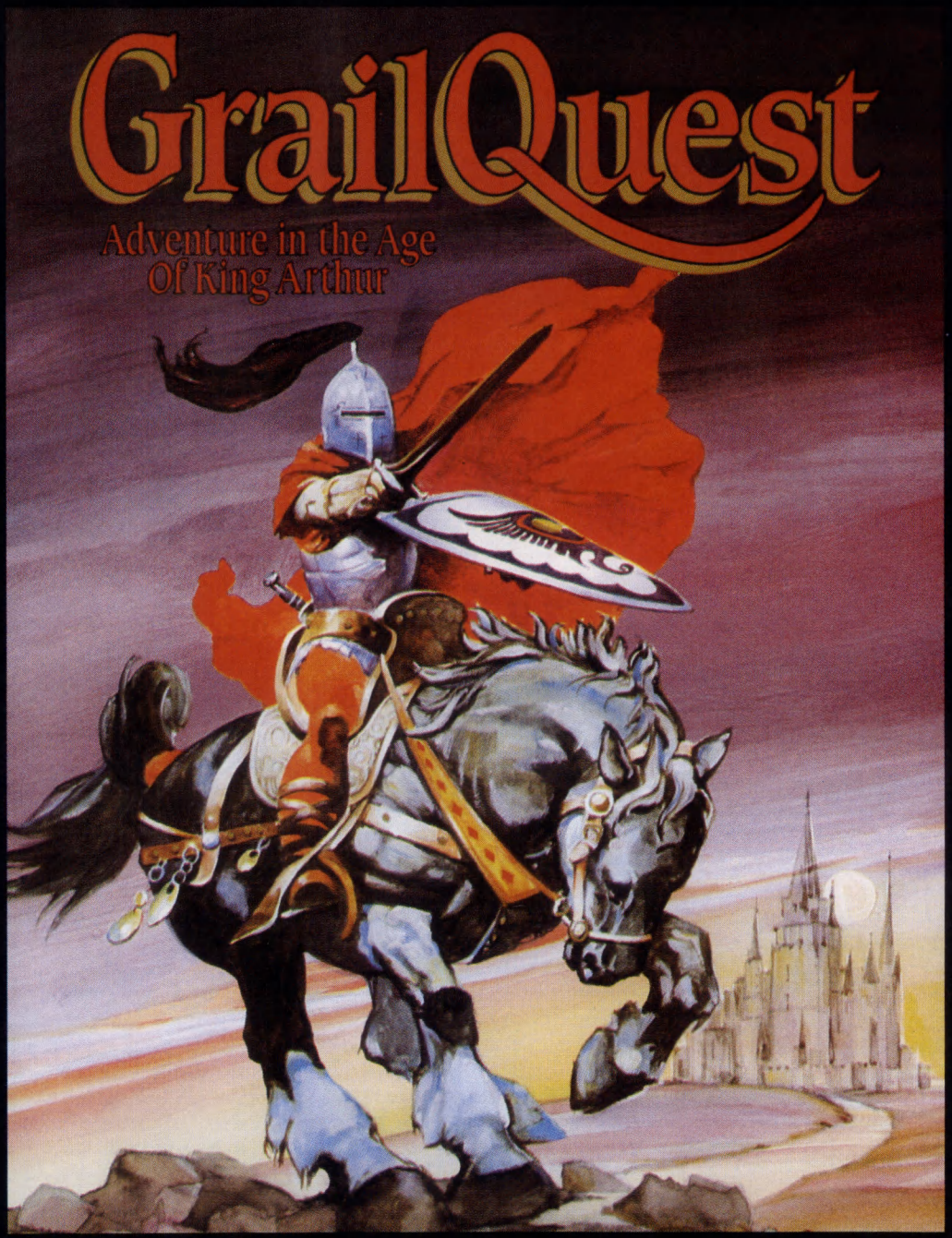
Probably the most important thing to remember about the display known as the 'playfield' screen is that the clock is constantly ticking and events occur only when this view of the land is employed. In other words, take all the time in the world to organize brilliant strategies on any of the other screens, but if a coffee break is required then this is positively not the screen to be on!

In addition to spying out the land, a crystal ball on this screen will inform the player of incidence of plague, famine, and battle. Troops and ships are also moved from this screen.

It should be evident from the foregoing that **Realms** is a pretty complex game. It's easy to just boot the disk and start playing, but it's unlikely that this will win any games. There are more than 50 pages in the manual, almost all of which contain essential information. Graphics are exactly what we've come to expect from this sort of game, though without the frivolous frills of **Powermonger.**

I started this review by comparing subjective opinion to objective fact, and I'm going to end it the same way. Being objective, I have to say that **Realms** is a first rate game. It does all that it sets out to do, and it does it well. There were no faults or bugs of any kind that I could spot, and for all these reasons I have to rate it very highly indeed.

That said, speaking subjectively, this game leaves me cold. I just can't get enthusiastic about it, and the most annoying thing of all is that I don't know why. My best guess is that having worked through so many games of this sort, playing **Realms** resulted in a feeling of deja vu. However, for anyone less jaded than me and looking for an introduction to this genre, then **Realms** could be just the ticket. ❑



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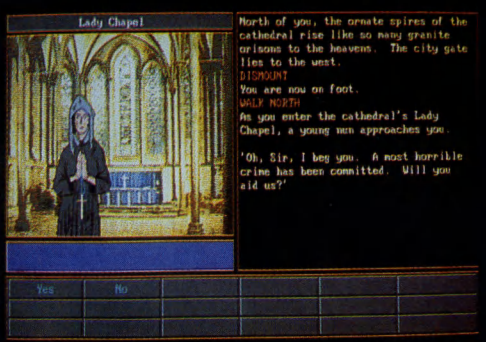
GrailQuest - IBM VGA


Lady Chapel
North of you, the ornate spires of the cathedral rise like so many granite orisons to the heavens. The city gate lies to the west.
DISMOUNT
You are now on foot.
WALK NORTH
As you enter the cathedral's Lady Chapel, a young man approaches you.
'Oh, Sir, I beg you. A most horrible crime has been committed. Will you aid us?'
Yes
No

GrailQuest - IBM EGA

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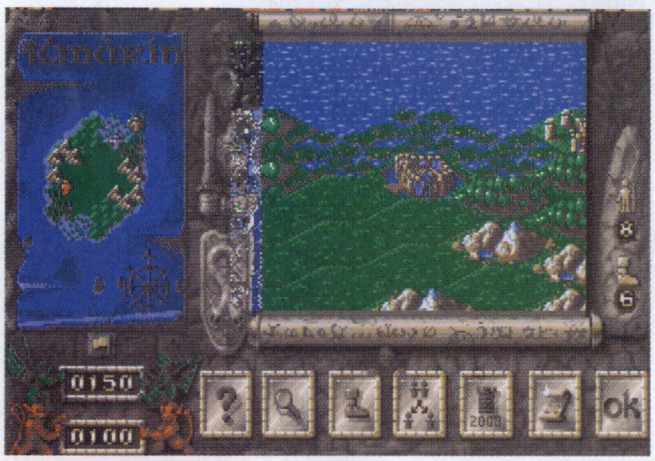
Celtic Legends

All along the watchtowers

By T Worthington



Published by
Ubi Soft

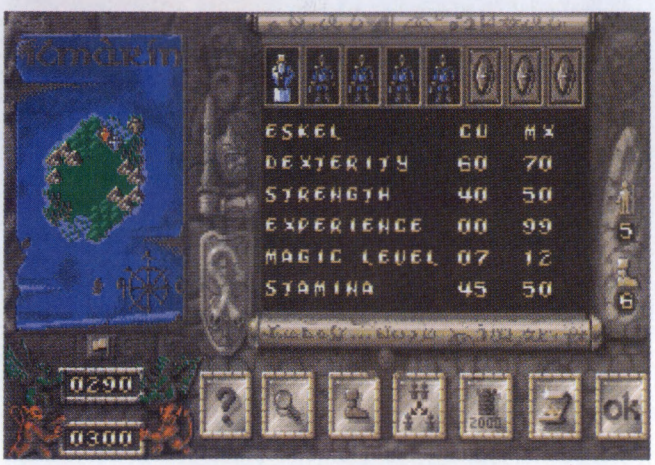
Systems
Amiga; IBM PC and ST to follow shortly

Players
1–2

Notes
US release towards the end of first quarter this year

Ah, ha! A game based on the myths and legends of the Celts, I thought. This should be right up my street, as I am a keen collector of material on this subject. What would it be? Another attempt to base a game on the career of Cuchulain (twice attempted and twice failed) or perhaps a **Dungeon Master** style game based on the saga of the sons of Tuireann, a story crying out for a game to be based on it? Or something more Gaulish?

In fact the game has *nothing* to do with the Celts or their legends, But then what's in a name?



The game operates on three levels of strategy and tactics. On the lowest level the player moves individual pieces on a hex map and attempts to defeat the computer (or opposing human) controlled pieces. Some pieces are able to cast spells and all pieces are limited to two actions (move or cast spell) a turn.

Savage empires

On the next level up from this (tactical play), the play area covers the whole of the current island which the players are struggling over, groups of pieces being represented by small markers of red or blue (the players, human or computer) and a third tan coloured marker that represents the 'savages'.

Savages are always under computer control and represent a weak neutral force opposed to both red and blue armies. Although the savages may be switched off for a game, doing so doesn't make the game noticeably simpler for the beginner.

If the player has succeeded in conquering the last island, a map pops up depicting a number of islands highlighted for the player to choose his next combat zone. The object of the game is to take control of the entire map.

Power play

The whole thing plays like a cross between **Powermonger** and chess; if **Powermonger** combat was under the control of the player rather than simply happening before his eyes then the only differences would be in graphics, atmosphere and the use of magic on the tactical map.

On the first island the player only has one magician who is the leader of their forces. The best use for him is to stay in the home castle to create troops. As this can only be done in an area with a castle (any castle, not just one's own) it may at first be thought that most fighting would be take place in or around the castles. In fact this does not appear to be the case. This is owing to the presence of another type of area on the islands: the pentangle areas.

Magic points

Each side (other than the savages) has magic points which are 'tapped' by all spellcasters in its army, so the side which has the most points in its pool will have an advantage in tactical situations.

At the end of each turn these pools are increased by a base amount and by an additional amount determined by the number of pentangle areas under the player's control. Hence, most fighting revolves around these areas rather than the castles, since each side starts with a castle and one is all that is required to magically produce troops while every pentangle gained is an advantage.

One rather odd aspect of the strategy required for the game is the fact that it is far more dangerous to attack than to defend and so one tends to wander around attempting to achieve something significant without actually doing anything.

Danger zone

Attacking is dangerous because after combat the victor may position their troops as desired. Since any attacker always comes in on the left hand or right column of hexes it is possible (and recommended) to place the strongest troops on this row to catch them as they arrive. Furthermore, if the leader of the army is with the attacking group then he appears on the first hex of the column, thus this is where the defender should place the strongest piece to beat the hell out of him when he appears. Great fun if you catch out the computer, but very frustrating when it happens to you, as it means 'game over' time no matter how well you have done up to then.

So, for all of you who have skipped to the end for the closing comments, here they are: the game is gloriously mediocre and, like many of its ilk, is well worth the cost of a budget game. A pity that it will not be sold at that price. ❑

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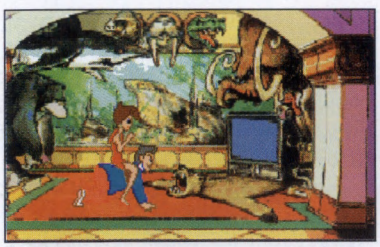

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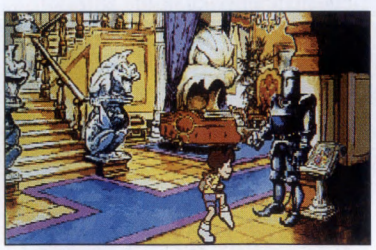
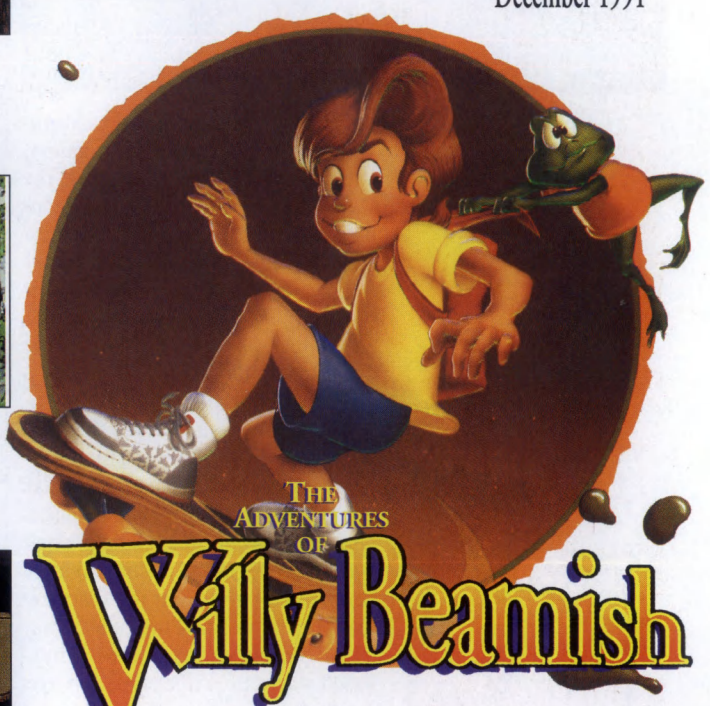


...When it comes to Willy, "Nothing is weirder than he but thee". Or something.



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Reader Service No. 85

Great Napoleonic Battles

Boney N on the march

By Stephen Lewis

On opening **Great Napoleonic Battles** I was immediately intrigued by the chunky little manual inside. Visions of a challenging rule learning session, however, were dispelled by the realization that less than half of the hundred page manual was in English, and of that only 14 pages were rules – the remainder being a potted history of the Napoleonic era!

The software is divided into two sections, a game disk with three preset scenarios and a construction disk to allowing the creation of new scenarios or modifying existing ones. Battles are set up by reading in three component parts from the disk: the map, the armies and the rules.

Anyone who has played a hex-based wargame will see the obvious roots of this package. The colourful and very pleasing terrain is covered in a hex grid, that can be toggled on and off. The playing area resembles a good quality high altitude photo, complete with meandering streams, bridges, villages, woods and so on. Units are represented in exactly the same form as their boardgame counterparts by coloured squares bearing the unit symbol (cavalry, infantry or artillery) and numbers that represent movement, and strength in attack and defence.

The friendly user interface combines mouse and keyboard controls, and the program makes clear which stage of the turn it is through good use of messages. The overall disposition of forces, however, can be hard to judge as the miniaturized strategic map is not clear.

Each turn consists of a movement and a combat phase. The similarities with hex boardgames continues in these phases: combat is handled by a 1 to 6 random 'die roll' which is referenced to the ratio of the attacker's strength to the defender's strength. Terrain affects this result as well as the movement costs for different units.

The selection of battles is slightly odd, as of the three available only Waterloo could be considered as one of the classic battles of the Napoleonic era. Quatre Bras was a relatively small scale affair, and Marengo was a dour bloodbath only decided by arrival of reinforcements on the French side, owing to Napoleon's out-manoeuvring of the allies.

It is only when the computer opponent is activated that things start to go badly wrong. The search for a good artificial intelligence (AI) system to play wargames has been generally a difficult one and unfortunately **GNB** does not advance this quest at all. The computer must first make strategic decisions, but in the large number of games played against the computer I could find no such discernable strategy.

Almost on every occasion the computer has moved its forces uncertainly forward with a lack of care for advantageous terrain or co-ordination between its units. The low quality of the AI becomes even more obvious at the tactical level: anyone who has played hex boardgames will appreciate the need to ensure that the opponent cannot cut off a unit's line of retreat, but unfortunately no one has told the poor computer player, which continually puts units into heroic but almost certainly suicidal positions.

The computer player must be regarded as at least incompetent, and perhaps even criminally insane, which may be an accurate representation of many of Napoleon's opponents, but does not lead to a challenging game!

As a simulation of a Napoleonic battle this is therefore very unsatisfactory, having divisions continually wheeling about each others flanks with little concern for their own position in a battle line. The effect may have been improved by increasing the number of units to represent smaller units, or by compressing the map to reduce the amount of wide open spaces.

Two aspects come to **GNB**'s rescue. As a representation of a hex boardgame it is excellent, and if played in two player mode it is as good as most of these games. Second, there is a construction kit, which allows the user to build new battles from scratch using a map-maker, an army creator and a rule book.

Two's company

The map-maker allows the player to define playing area size, and to place any of the 150 different terrain hexes on the map. In addition the different types of terrain hex can be defined in terms of effect on each type of unit's movement and combat. The army creator allows the player to create new units and armies, setting their strengths in attack and defence, their movements and position.

Finally the rule book can be altered to change the results of the combat table, and also to allow morale, disorder and limited visibility to be incorporated. With a bit of research and imagination hex game battles of almost any period can be simulated.

Overall **GNB** is worthwhile for two-player games, and a must for anyone who enjoys creating his own simulations, but for the want of a semi-reasonable AI system the solo version is very poor. ❑

Designed by
Edward Grabowski

Published by
Impressions

Systems
Amiga, ST; PC to follow in the first quarter of the year

Players
1–2

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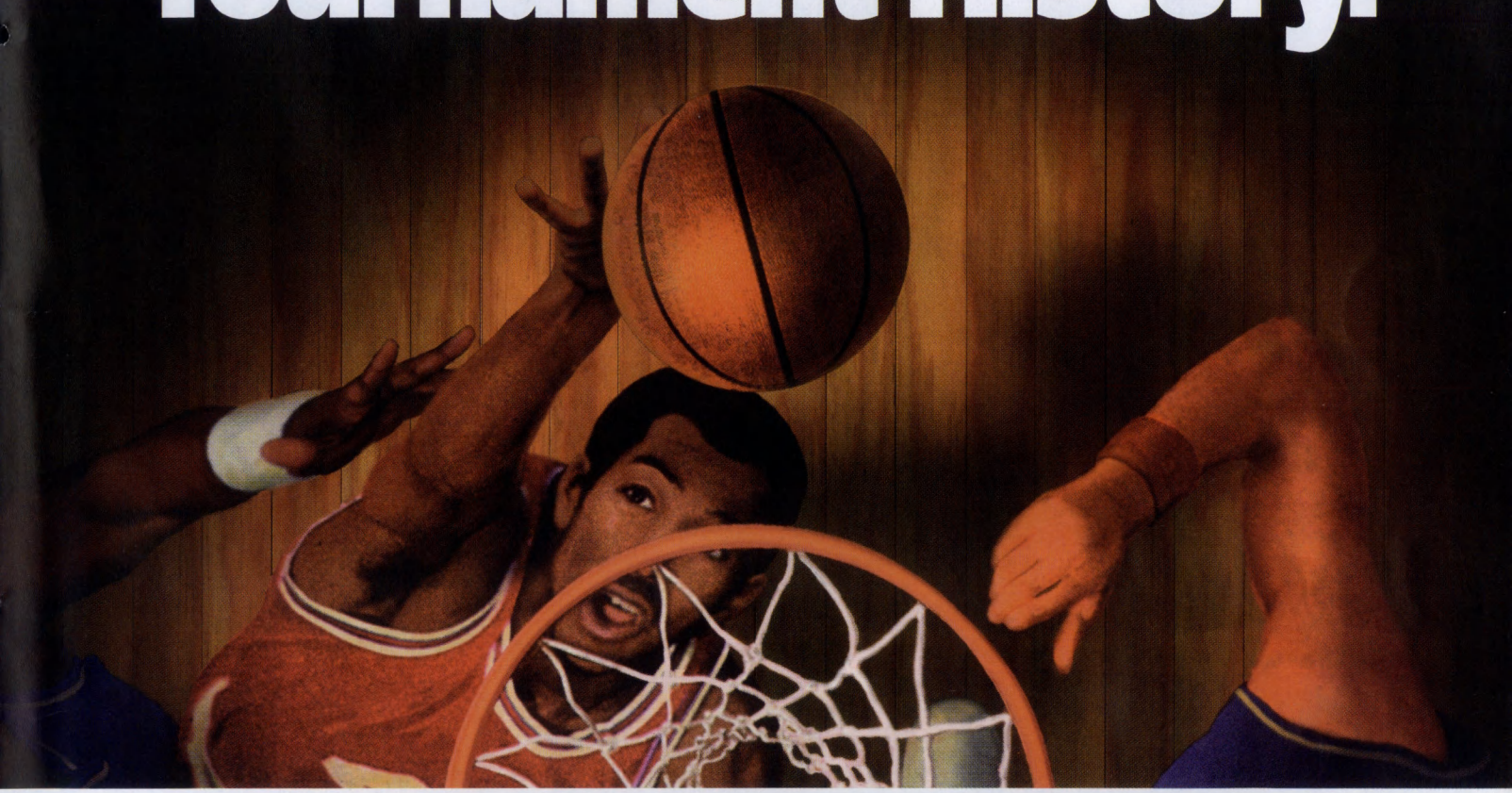

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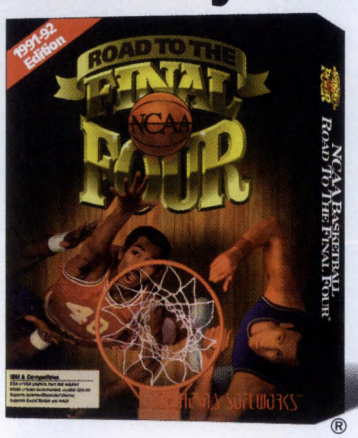

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Reader Service No. 101

STRATEGIC

Ken Wright gives his views on artificial intelligence in strategy wargames

As an author of some 15 computer strategy wargames over the last eight years, I have been interested in attempts to look at such games in a serious and intelligent manner.

It seems to me that there is a good deal of confusion about what a strategy wargame is and what its aims should be. At the moment there are far too many people (including reviewers) who take the view that if they like a game, then it's good but if they dislike it, it's bad. The idea that even fractional differences between games will ensure they appeal to different tastes seems foreign to some people.

The all too frequent result is that a game is criticized for not doing what it was never intended to do. Games are 'compared', when there really is no comparison. Take graphics: one game's graphics will be criticized as being better or worse than another's without anyone asking: better or worse *for what purpose*?

As an author (it means more than a just programmer), I am also struck by how little discussion there is in the computer press about the games' authors and what they are trying to do. I write this article in the hope of getting some discussion going, to the ultimate benefit of authors and players.

Let me start, then, by declaring my interest: I want to produce games that are a real and enjoyable test of the player's strategic ability. Whatever else the game's

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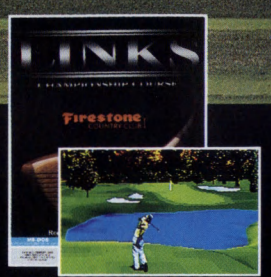

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features, all are to serve this end. That means a computer opponent worthy of the name.

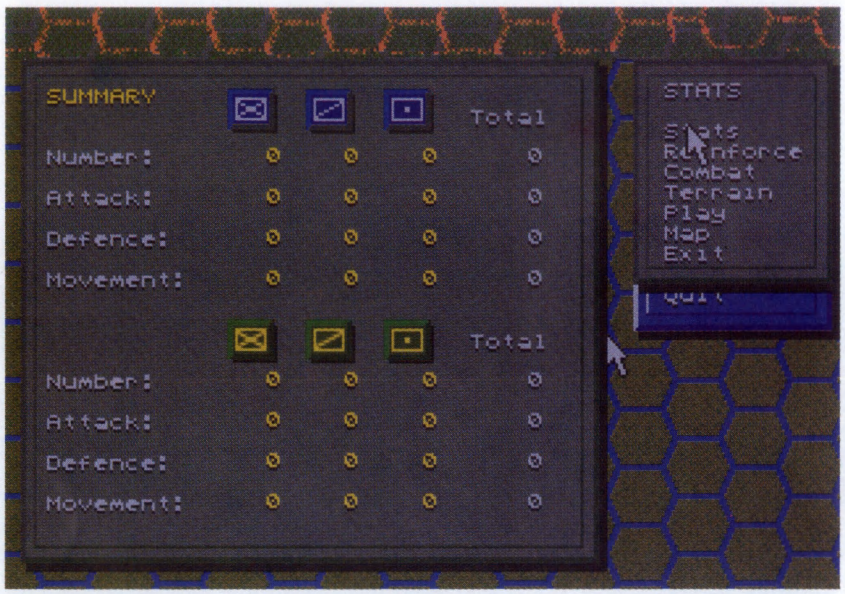
Now I get very puzzled by the varying attitudes regarding the quality of computer opponents. For example, some comments suggest that a computer opponent will be beatable every time, once a winning strategy has been found. This opinion assumes that the programmer simply tries to predict as many player-strategies as possible and then programs the computer with an adequate response. Find a good strategy he has not predicted and you will win. A good computer opponent is one that will react appropriately to your new strategy.

If on the other hand, the player (or reviewer) finds

Ken Wright: a gameography

Spectrum
MC Lothlorien
Waterloo, Austerlitz, and Borodino
CCS
Pacific War, Napoleon at War, Gettysburg and Chickamauga in Yankee, Blitzkrieg, Overlord (also ST), Stalingrad, Wellington at Waterloo, Austerlitz 1805
ST and Amiga
Impressions
Blitzkrieg May 1940, Afrika Korps

Reader Service No. 87



Great Napoleonic Battles: a wide range of options

himself repeatedly beaten, the criticism is that the game is hopelessly biased in favour of the computer. Rarely will it be thought that it is a good computer opponent that is causing the difficulty.

Let's try to come to grips with what a good opponent is. It is one that is designed to respond appropriately to whatever strategy a play tries (as much like a human opponent as possible) and therefore one that the player will have to learn to out play (like a chess program).

This brings me to artificial intelligence (AI). I read the two articles on AI in *Strategy Plus 6* with interest, but found myself at odds with them. Talk about AI usually heads for the stratosphere with concepts like 'genetic algorithms' and 'neural networks' and ignores what might be possible now in games for today's machines.

I happen to think that something is being achieved, and that it is largely being ignored. The trouble is that a game often has to be played quite a number of times, before you discover whether its play is rigid or responsive, and also whether the difficulty in beating it is because the opponent is good or just unfairly loaded. On the whole reviews simply do not go into these questions.

I would like to look at the question of the 'intelligent' computer opponent. Human intelligence is characterized by the ability to create and choose. A machine works automatically, deterministically, without choice; however complex and flexible you make a digital computer, with parallel processing and the like, it remains choice-less.

The human brain was not designed to write either symphonies or computer programs but has managed to do both. Its range seems remarkably unrestricted. The range of what our computer programs can do is a good deal more restricted. Nevertheless the humble computer can out-do the human brain spectacularly in one way at least. Equipped with logic, it can apply it rigorously and with phenomenal speed to perform calculations that a human brain could not attempt.

Using our human intelligence and rather less consistent logic, we can use these phenomenal powers to get a deterministic computer to solve problems that we solve by different means. We can build so many factors into the computer's 'decision making' that not even the strategy-game's programmer can predict with certainty what the computer will 'decide' in a particular position. Add a (pseudo) random element to some of the calculations and we can even create the unpredictability that simulates choice.

Deliberately over-simplifying a bit (using 'intelligence' for the creative human ability and 'logic' for the computer's rigorous processes) let's say that we can create a contest between intelligence and logic. This, for me, is the challenge. Decades of work have managed it for the game of chess. I want to do the same for strategy wargames.

The computer can use its logic with phenomenal efficiency, but it all has to be put there. I know to my cost that it takes years to work the logic out. You can't just tack the computer opponent on at the end either. Too many games are only too obviously two-player games with a rudimentary computer opponent bolted on afterwards. You have to start the game development with the design of the opponent. It's the guts of the game and, like guts, should be invisible. The trouble is that, because it is invisible, many players who can't at first beat the computer's logic declare the game hopelessly biased.

The aim is to create a game that will challenge players to use all their abilities to win, and this will always satisfy those who enjoy using their intelligence. My aim in producing strategy wargames is to challenge the player's intellect.

How do you start, then? First, identify a good battle! Many famous encounters are next to useless, either because they were so one-sided, or because one side behaved so ineptly that you would not want to simulate it. You need an interesting battle that offers a well matched contest with lots of room for manoeuvre, to present intellectual challenge and variety.

Napoleonic land battles are a good choice: there is a broad terrain for manoeuvre and varied forces (infantry, cavalry and artillery), allowing a wide range of options for the player and consequently a large set of headaches for the programmer. I started with Second World War air and sea battles, because the movement and decision problems there are a piece of cake in comparison.

Painful analysis

How are you going to program even a couple of dozen units to move coherently and effectively, no matter how the player manoeuvres, whether concentrating or splitting his forces, defending or trying to outflank? Well, if you are prepared to devote a couple of years to it, it can be done! You painstakingly analyze and identify the abilities the human player requires, in order to play intelligently, and then you program the computer with each ability.

To illustrate the process, take the simplest case: one unit is faced by an enemy unit. You compare the strengths, and on this basis decide whether to attack, defend, hold, or advance but not withdraw but prepare to defend, or summon reinforcements, or get the hell out of it. The computer is programmed to do likewise.

The 'ability' consists of a set of parameters leading to a 'choice'.

Parameters would here include not only unit strengths, but also unit morale and terrain features, such as a hill with high defence rating, or a stream with reduced attack rating. The comparison must produce an arithmetic result. The programmer has to build in a suitable response for various ranges of resulting arithmetic values. If the ranges are reasonably wide, then the response for a result near the borderline of two responses can be chosen randomly, so that predictability is reduced. The computer will then appear to possess choice, that is intelligence, as long as the responses fit the situation well enough.

Local politics

Well, that doesn't sound too difficult! Let's look at the most obvious complications. If you were making the calculation, you would also consider nearby units – units supporting the enemy unit and your own. The programmer must simulate this positional thinking for the computer opponent. The unit calculation above would be put into effect only if the 'local position calculation' produced an acceptable result and a flag were set accordingly. In this way you create a hierarchy of command and control.

It seemed to me that an army is made up of singular entities at various levels. One army contains several corps, one corps contains several divisions and so on. A unit within the game can be considered as a single entity, regardless of what it represents in reality. Any number of units, forming a division, for example, can be treated as a single entity at the divisional level. An ability used at this level produces a choice that will apply to all units in that division. This does not mean an individual unit cannot thereafter reverse this choice.

It is possible to have the computer assess at unit level, local level, area level and army level. If, for example, at the army level, the computer opponent carries out a simple comparison of total strengths of the opposing armies and discovers its army is only half the strength of its opponent, it may 'choose' not to attack. A flag could be set preventing any choice of attack at any level. Alternatively, the flag could be used as a value to bias choice, making attack less likely, but not impossible. One possible choice, under the circumstances, might be for the army commander in effect to tell his corps commanders to run like hell. If these choices were subject to a degree of randomness, then predictability would be totally destroyed.

So much for looking for the strategy the programmer has not predicted – no strategies have been predicted by the programmer. Provided he has equipped his computer opponent with sufficient 'abilities' (which must be suitable enough to produce one of a number of sensible responses), it can effectively create its own strategy and, in response to the actions of the human player, constantly modify it.

What you have constantly to ensure is that the response will make sense. Addition of more and more choices based on more and more parameters is not enough. The computer must be programmed so that the logic will rule out absurdity. Note that I said rule out absurdity, not mistakes. It is important to understand that a mistake is not necessarily absurd. We all make mistakes from time to time, but by our intelligence can avoid absurdity.

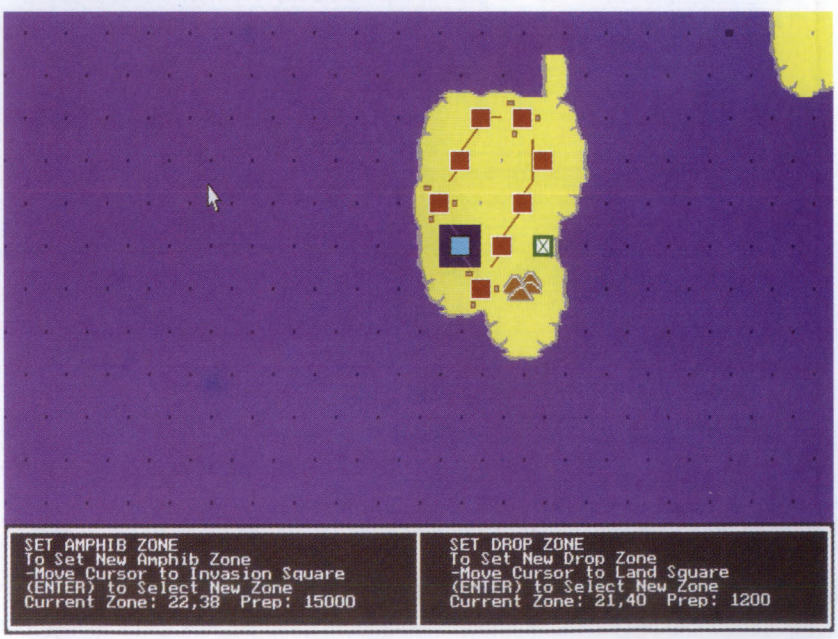
The parameters to maintain sense must all be provided by the programmer. Different battles require different parameters and abilities. 'Universal simulators' and 'universal algorithms' are moonshine. In war, new technologies and new weapons create new strategies and there is no way of predicting novelty in advance. The programmer must predict the new parameters that would ensure the new strategies made sense. So in strategy games : you have to program for each different set of problems. This does not restrict the computer opponent within a particular game any more than the human player is restricted by the limits of his own abilities.

What you do discover, when you do the hard basic work, is that particular routines you have developed for one game can be used in later games progressively to improve the computer logic. This is how effective chess programs were developed and it took a long time! Once some of the main headaches are solved, though, the strategy wargame programmer has a lot of advantages over the chess programmer.

The trouble with chess is that it is not just a strategy game. You have to calculate many moves ahead down a number of lines just to make sure one crushing reply has not been missed. This is just not required in wargames, nor is it possible, because combat results are like die-rolls and not fully predictable. The chess program cannot assume that because it wins the player's queen and makes its own forces twice as strong as the player's the move must be good, for the very next move may be checkmate.

In strategy wargames, if you can demolish half the enemy's forces at a stroke and make yourself twice as strong as your opponent, you simply need not calculate further.

The future belongs to those programmers prepared to spend the time providing the computer with all the necessary abilities to create the appearance of intelligence. ❑


SET AMPHIB ZONE
To Set New Amphib Zone
-Move Cursor to Invasion Square
(ENTER) to Select New Zone
Current Zone: 22,38 Prep: 15000
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To Set New Drop Zone
-Move Cursor to Land Square
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Current Zone: 21,40 Prep: 1200

Western Front: universal algorithms?

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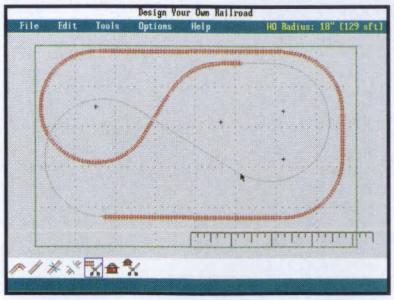

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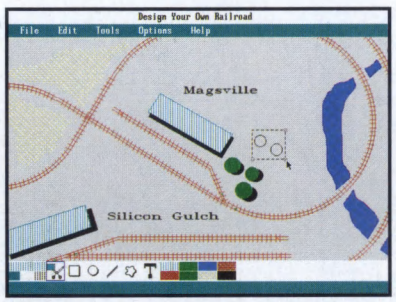

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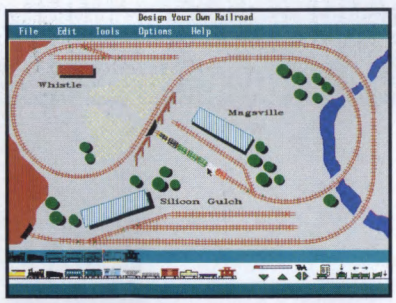

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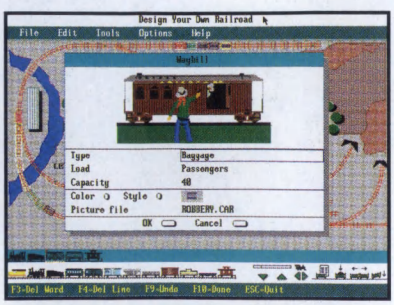

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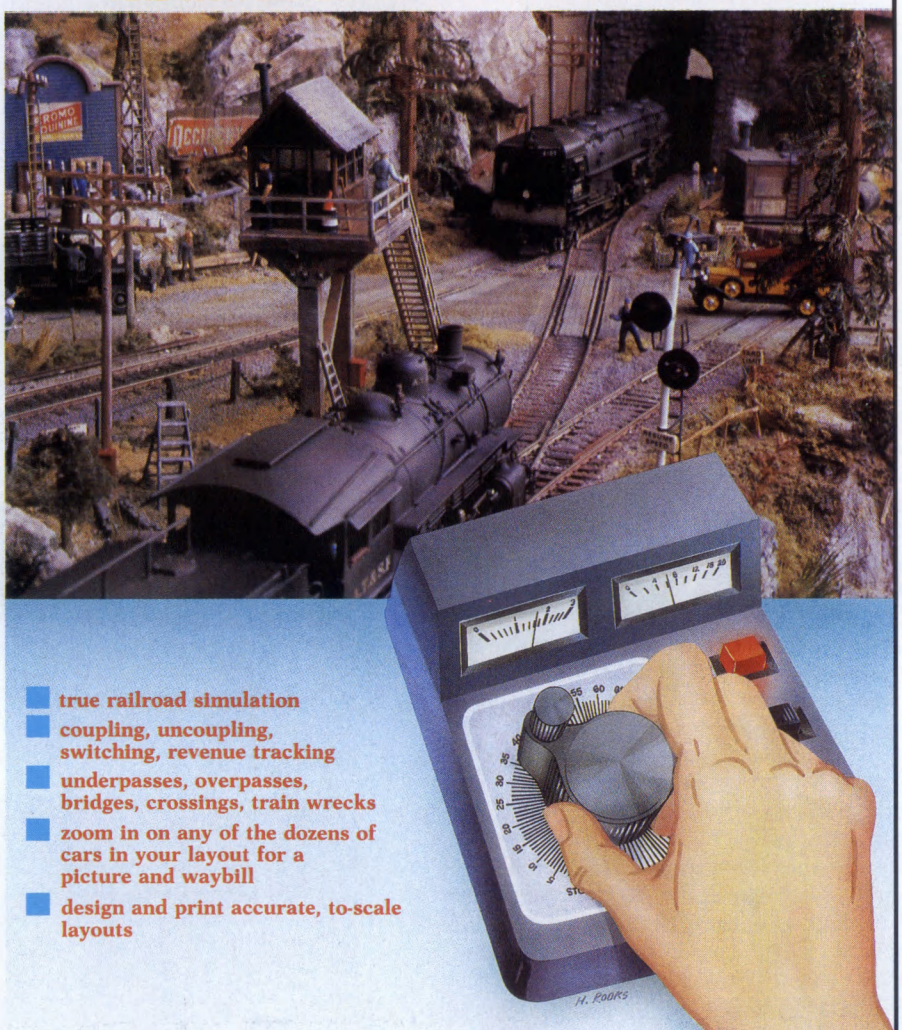

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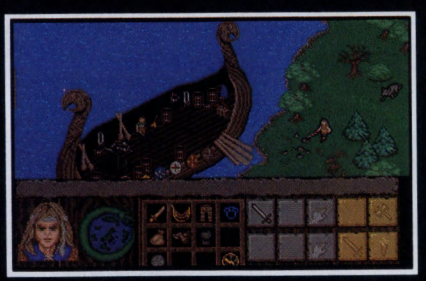

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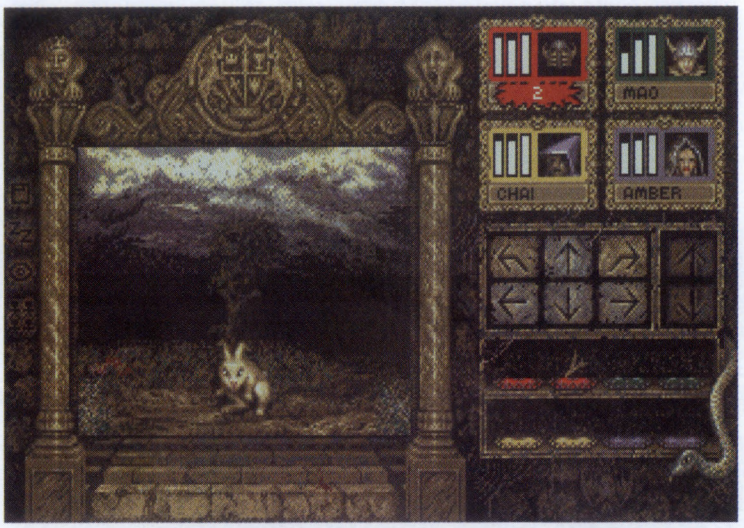

Knightmare

A captive audience

By John Scott

Designed by
A Crowther, T Child, J Thwaites and C Crowther

Published by
Mindscape

Systems
Amiga, ST

Hundreds of years ago (at least, it feels like hundreds of years) a new game appeared, quietly and without much fuss. Not only was it a new game, it was a new type of game, free-format, where the players entered am imaginary world and role played their wildest fantasies (and some of them were pretty wild in those days!).

The genre mushroomed: **Dungeons and Dragons, Tunnels & Trolls, Bunnies & Burrows** were all part of a vast gathering of games loosely linked by rollicking role-play and alliterative appellations.

At some point in time, some seriously warped individual transferred the idea to computers, thus giving life to the computer-moderated role-playing game. This was actually rather good news, and some truly memorable adventures were produced.

Then it all went a bit downhill. Software houses, some of which seem to know remarkably little about games, were quick to spot that role-playing adventures were popular. Then, as so often happens, the popular became the mediocre. Now, as I look at the random dozen or so games scattered about my desk, I see no less than six which claim to be 'role-playing adventures' but are, in fact, simply below-average arcade joystick-waggling games.

Sometimes, however, a light appears in the dungeon and, with **Knightmare**, it turns out to be the genuine glint of gold, not just the deceptive flicker of an arcade machine. If you've played FTL's **Dungeon Master** or **Chaos Strikes Back**, then you will instantly be on familiar ground with **Knightmare,** as the player interface and actual game play are almost identical. Fans of last year's **Captive** may care to note that this program uses the same engine.

TV times

I was initially wary of **Knightmare** for the simple reason that it's based on a TV series, and we all know what that can mean, right? For all those who can't get British independent TV, and for all those who don't watch kid's programmes, let me tell you just a little about the TV series. (Not that I watch kiddie progs, of course - except for the *Simpsons* - but being such a serious and dedicated reviewer I hunted out an episode or six and had a look.)

The program involves one 'blind' contestant who is guided through a labyrinth by three pals who watch him or her on a TV screen. Encounters within the game are provided by professional actors and all the technological wizardry that low budget TV can manage. Actually it's quite entertaining – for a kids program, of course.

The links with the game are not immediately apparent. The most obvious connection is that the manual contains a couple of full colour glossy photos of the stars of the show. In the computer game itself, the player controls a party of four and at certain locations advice is provided by Treguard the dungeon master, or his poofy little elfin pal.

Knightmare appears to offer three separate quests. I say 'appears' because the manual, while not brief, is surprisingly reticent about providing useful information. For example, it's nice to know that I can play the game as a man, woman, ghoul, goblin, ogre, troll, elf, or insectole, and that each of them can be an adventurer, gladiator, samurai, wizard, priest, or genie, but even a word or two about the practical differences between say, a troll and an ogre would have been nice. And the special abilities of a gladiator I can guess, but a genie?

Playing the game, I came across a few items of no immediately apparent use, and sometimes wondered if a more than superficial acquaintance with the TV series would have stood me in good stead.

Some of the items also seriously dented my willing suspension of disbelief, and we all know how painful that can be, guys! I have to say that in a fantasy game of this type, I don't really expect to find tee shirts, shorts, and other such 20th century mundania.

Graphically the game is quite nice in a subdued, almost monochrome, sort of way. I found it a bit difficult to judge distance at first. Until one gets used to it, it's very easy to damage the party by walking into scenery that looks further away than it actually is. Animation of opponents is nicely done – watch out for the killer bunnies!

Despite the quibbles I've mentioned above, dedicated adventurers could do an awful lot worse than to check out **Knightmare**. I certainly intend going back to it. ❑

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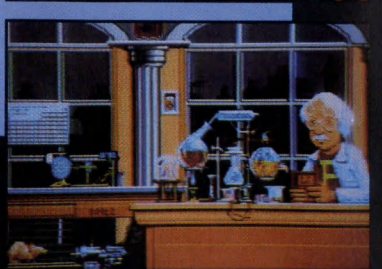

Actual VGA 256 color screens shown

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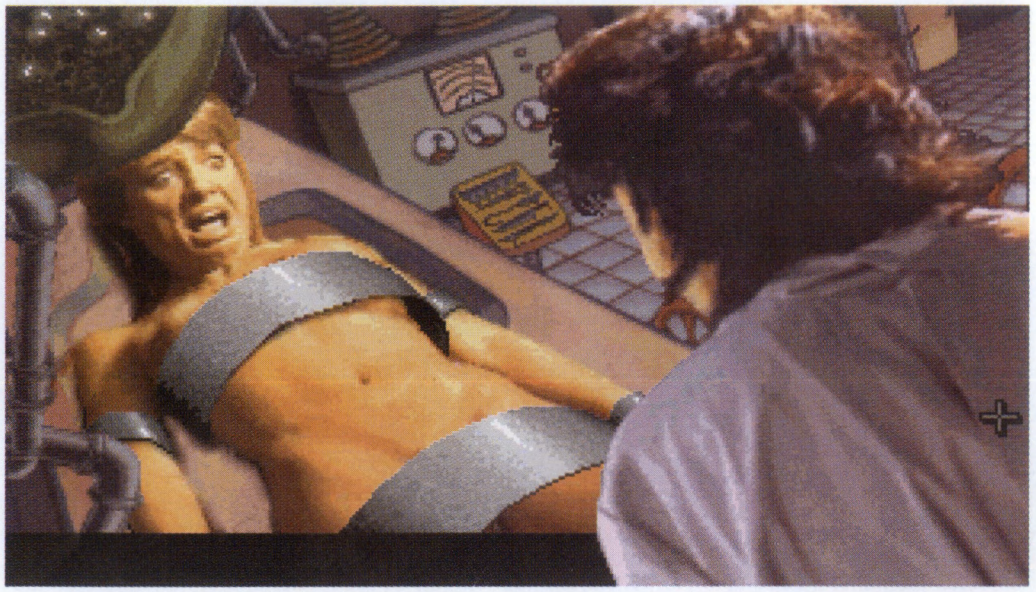


Les Manley is: Lost in LA

Quality time at the mall

By Joan McKeown

Designed by
Steve Cartwright

Published by
Accolade

Systems
IBM PC

PC graphics
256-colour VGA

Supports
Adlib, Thunder Board, Roland MT-32/LAPC-1 and Sound Blaster

Les Manley, the guy with the 'usually' private dick, is loose in LaLa Land, investigating the disappearance of several Hollywood celebs. Our hero is poached rather than hard boiled which leads to many hilarious encounters with the denizens of decadence that populate this rilly awesome version of LA.

Billed by Accolade as an 'animated graphic adventure', **Lost in LA** is really an interactive movie – a full blown B-movie with a marvellously wicked cast of characters. The most impressive feature of the game is the use digitized images of real actors. This game has a *cast*.

The walk around frames are standard video graphics, but the conversation frames feature real actors. You can almost smell the seedy operator of the shabby hotel, and many an adventuresome fellow will want to put Les's hand on places other than the inventory.

Much of the game consists of watching set pieces play out. The interface is easy to use and quite simple. In fact, one of the most charming aspects of **Lost in LA** is the transparency of the interface. Icon use is obvious and not complicated by a lot of intermediate mouse motions or selections. Simply sliding the mouse towards the bottom of the screen will bring up the inventory menu bar, and items are easily identifiable.

Speak easy

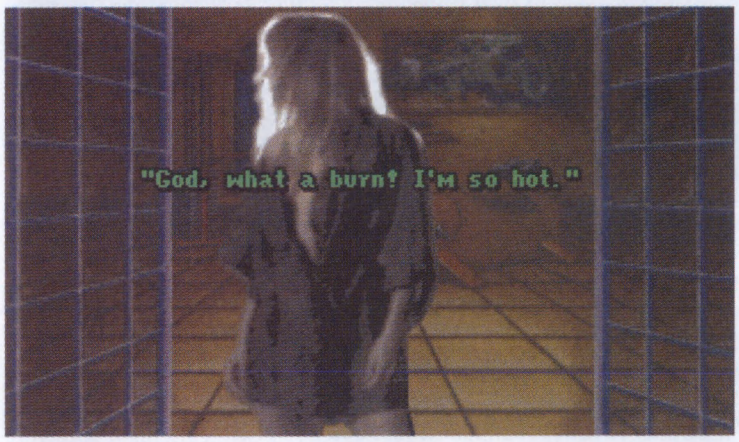
Conversations and actions are controlled by selections from **Windows 3.0** type dialogue boxes. The lettering is large and the font is easy to read. Some of the colour combinations set my teeth on edge, but, hey, this is Hollywood!

Navigation through the graphic screens is quick and also simple owing to the fact that Les has *really big feet*, just point 'em and pull 'em and off he goes! When major distances must be traversed, a map of LA becomes available on screen and trusty Les will follow his feet, anywhere.

I found some of the conversations tedious, but they are well written and absolutely reek of Southern California dreck. Someone among the writers of this game spends a lot of time hanging out at the mall.

Game play requires talking to just about everyone, and an extremely linear series of item exchanges. The order in which Les talks to various characters is important. Fortunately, most conversations will give a clue if he has not spoken with the right people yet.

Many crucial plot elements hinge upon a specific series of object acquisitions. There are very few real puzzles in the game, but the locations of some of the objects and required conversations required are obscure to say the least. Careful observation of the scenes before and after actions, or conversations, is necessary otherwise vital items can be missed. When characters move after Les's farewell,



something is usually being revealed. Go back and look, and examine any new options or items.

In the course of discovering the ultimate villain, Mad Wax, Les will use his computer hacking skills, enjoy a sojourn at Club Mud, become a video darling thanks to Maladonna and company, visit and ransack a horror film set, touch minds with every bimbo in LA, and ultimately, if successful in puzzle solving, rescue Helmut and LaFonda.

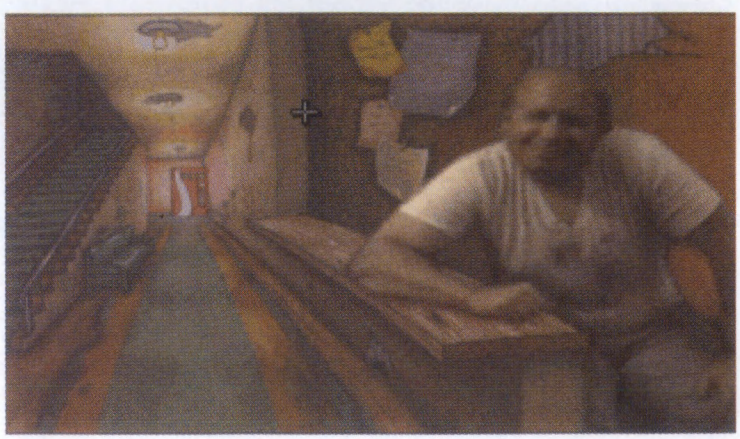
There are two possible endings, however, to this search. Only one will make Les more manly, and that one requires the player to note that some museums have a 'please touch' policy.

Les Manley is: Lost in LA sports a 'recommended for mature adults' label on the box, but much of the humour is student level and the graphics, while sexy, are no worse than most jeans commercials.

First introduced in 1990 in **Search for the King**, Les Manley is a loveable little nerd who rose from humble TV station drone to sole proprietorship of the station in the course of finding the 'King'. Les has enough innocence to carry the plot of **Lost in LA**, and enough panache to get away with the dialogue, which is loaded with double entendres. Titillating, but nothing that most 14-year-olds haven't sniggered about before.

Overall the game is a terrific technical achievement. The story and the unfolding of the plot are well done. The sound effects are startling and realistic. The music is well done and driving, but a bit overpowering at times.

A deep dark mystery, and fun to go with it! Travelling with Les Manley, lost in LA, is a good way for gamers to find themselves – laughing out loud. ❑



ORIGIN IN THE UNDERWORLD

Brian Walker previews the underworld of Ultima

The only question is: what kept you? This enquiry refers to the vast number of dungeon games about to be unleashed on an entirely suspecting public. FTL's seminal **Dungeon Master** proved that there was a large number of people out there who liked nothing better than poking around in dungeons, and yet it was several years before **Eye of the Beholder** launched the second wave.

Now, of course, everyone and his cat has got a dungeon game. Electronic Arts' **The Black Crypt** is due any day now, while **Eye of the Beholder II** looks to set new standards in the oubliette. Another likely contender is Origin's **Ultima Underworld,** which combines the 3D technology of the company's **Wing Commander** with the detailed world of **Ultima**. Unusually for Origin the game was produced by an outside developer – Blue Sky Productions, whose Paul Neurath created **Space Rogue** for Origin prior to founding Blue Sky.

Being there

The world of Britannia is seen here from a more personal viewpoint and thus allows first person 3D perspective through the eyes of the heroic Avatar. Origin describes the **Underworld**, somewhat optimistically, as the 'first virtual game'. Short of installing your head in the monitor and attempting to play from there it's some way from that, but the graphics do convey the sense of 'being there'.

The plot involves the kidnapping of Baron Almric's sexy daughter, the guilt for which is placed firmly on the Avatar. The only way innocence can be proved is to enter Britannia's infamous Stygian Abyss and rescue the hapless damsel.

You guess that it is currently night.
You see a mellow goblin.
No traps detected.
You see a sturdy large gold nugget.
No traps detected.

But the task is not as straightforward as it seems. It seems that the evil mage who kidnapped the wench, apart from a being a fully fledged fiend in is own right, is under the control of a nasty from another dimension! Both the mage and the lass are mere pawns in the game of this other from another planet who threatens the very existence of Britannia. The player's task then is: save the girl, save the world, and kill the creepy crawlies along the way.

Underworld uses the ubiquitous WIMP interface with a keyboard option - pointing, clicking, and dragging makes saving the world that much easier.

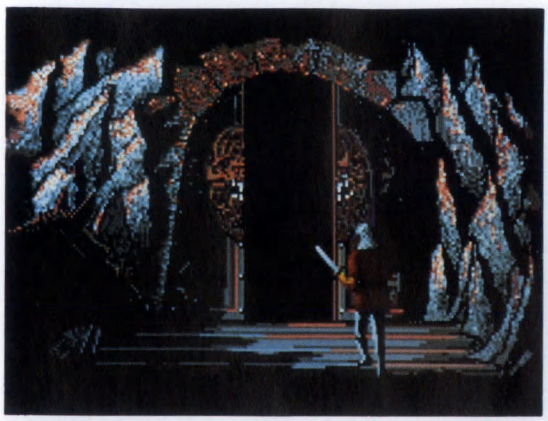
The combat system in the game is fast and furious as befits a real-time system. Weaponry includes everything from sword to mace to bow. Players with a hand weapon decide what part of their opponent's anatomy they want to assault by positioning the mouse pointer on the appropriate part of the target and pressing the mouse button. Then they must decide whether they want a quick, relatively weak attack, or a slower but more powerful attack.

Missile weapons include bows and slings. Players sight their weapons, leading their targets and allowing for 3D trajectory, before firing. Arrows, bolts, sling stones and gods know what fly though the air towards the by now nervous opponent.

No such game is, of course, complete without a bit of magic, or in this case, subterranean magic. Player cast compose and cast spells by mastering the runic language and speaking the appropriate words. Runestones imbued with the essence of the magic syllables are grasped in the hand before invoking a spell. These ancient stones are collected during the course of the adventure and placed in a magic bag.

Players can select from over 40 spells. Casting iron flesh, for example, will turn one's skin into a sharp blade. Sheet lightning will electrify any lurking lurkers. The graphical representation of these spells is very sharp indeed. When fireball is evoked, a gout of flame appears, while during tremor, stones fall from the ceiling.

Unlike many CRPGs, no mapping is required in



Underworld. Instead a sophisticated automapping feature is provided to keep the player on the straight and narrow. Comments may even be inserted on the map thus allowing the player to remember where each important character or landmark is to be found.

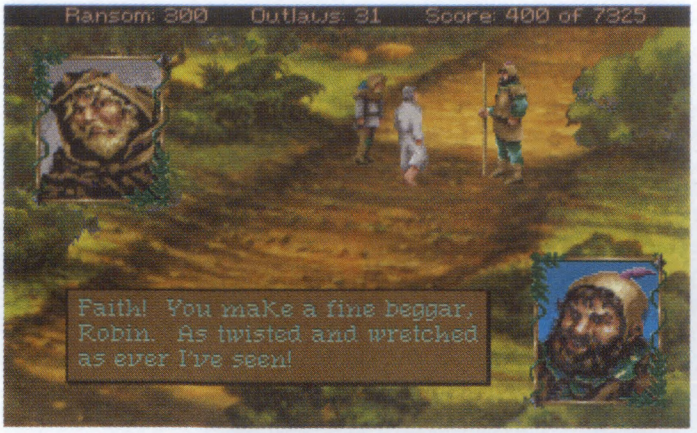
Underworld 'director' Paul Neurath explains some of the design philosophy behind the game: '**Ultima** games prior to **Ultima VI** had 3D dungeons, but in **Ultima VI** they were replaced by overhead views. There were two reasons for this. First, Richard Garriot (Lord British) wanted the game to have a single, consistent view. Since the bulk of the game was already seen from a overhead perspective, its dungeons were adapted to that standard.

'Second, when **Ultima IV** was programmed, the technology did not exist to support 3D dungeons detailed enough to do justice to an **Ultima** world. That's where we came in.'

But will **Underworld** be a familiar place to regular **Ultima** players? '**Ultima** fans should feel right at home,' explains Paul. 'The action takes place in a dungeon made famous in earlier **Ultimas**, so you'll fight **Ultima** creatures, cast **Ultima** spells and talk with descendants of characters from **Ultima IV**. You'll also follow a serpentine rich in the tradition of past **Ultimas**.

'The most obvious difference is that there is no top-down view in **Ultima Underworld**. It's all first person which is just right for dungeon games. You can really capture the claustrophobic you-are-there feeling. There's no way of knowing what's lurking around the next corner or what might be swooping down on you from overhead.' ❑

***Ultima Underworld** will be released for the IBM PC in the first quarter of '92 by Origin Systems.*



Conquests of the Longbow

The legend of Robin Hood

By Joan McKeown

Designed by
Christy Marx

Published by
Sierra On-Line

Systems
IBM PC

PC graphics
VGA, Tandy, EGA

Supports
ThunderBoard, Pro Audio Spectrum, Adlib, Roland MT-32/LAPC-1/ CM-32L, and Sound Blaster

Count me among the conquered! Christy Marx has put together an experience that is guaranteed to knock your stocks off. Well, *my* stocks are long gone and I am a willing captive of **Conquests of the Longbow**.

Where to begin? The beginning... nah... I might get carried away by the spine-tingling thwanggg of the mighty longbow, or rhapsodize over the sweet and lilting score – a score that is so good that for the first time in any game I've played, the sound is on all the time, cranked to the max.

Perhaps I should begin with a message to that 'Mama' person – get a life woman, and get this game. Everything you yearned for last month awaits in Nottinghamshire: sweaty villains, devious foes, cheery companions, a wardrobe to die for, a hairy chested bear of a man with lust *and* romance in his heart.

There are things to do (more than 7000 points worth), places to go (I haven't found them all yet), a cast of thousands (well, lots anyway), all set before the player in a 13-course banquet of visual delights.

This version of the oft told tale of Robin and Marian and the Merry Men of Sherwood succeeds on many levels. It has charm, whimsy, romance, adventure, mystery, quests, puzzles, magnificent graphics, convincing animation, and some violence too. The dialogue is witty, the humour sustained.

High fantasy

There's all this and arcade action sequences, riddles, a built-in board game, a hedge maze, high drama, and more than a few really high clergymen.

Conquests of the Longbow: The Legend of Robin Hood is romance. The gamer is wooed and won by the soft and persistent touch of the game design, and an uncanny attention to detail. The story closely parallels the Robin Hood legend as depicted in the Errol Flynn movie, with much of the roughly sensuous Kevin Costner interpretation shining through. Unlike the Hollywood interpretations, there is no phoney glitter and glitz in this game. Nothing about **Conquests of the Longbow** is overblown or obvious, except perhaps the clergy, and Friar Tuck I can forgive!

In a wise move, the game excludes the familiar stories of how Robin meets each member of the Sherwood gang: they are waiting as play begins. Each character is finely

drawn in the dialogue at the beginning of each day and around the fire each evening. Several decision points in the game revolve around advice from each figure speaking true to character. Robin himself is quite a character, and as the game progresses he grows and changes. This maturation is evident in the changes in dialogue and in the types of decisions he can make. What a welcome change from stats and hit-points!

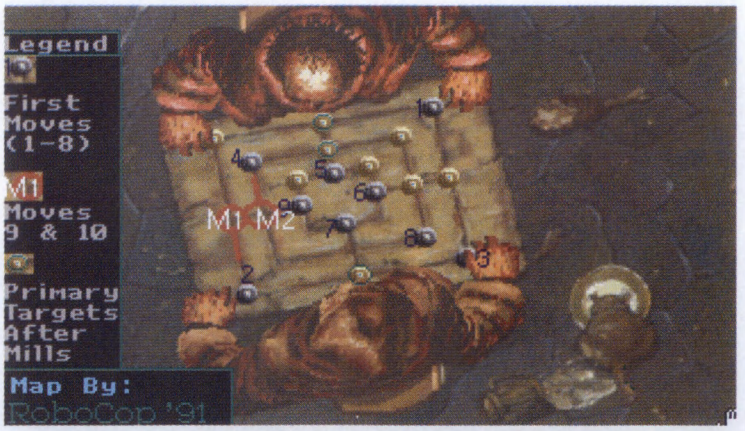
On the first of 13 days of play, the gamer is presented with the opportunity to explore the greenwood and to drop by a shady glen where one of the requisite arcade skills, archery, can be practised.

There are several arcade type sequences requiring different skills. Difficulty of the sequences is controlled by the gamer and most can be skipped by setting the control to zero and winning by default.

For the more adventuresome, some tips: keep your eye on the grand old flag in the target area – the higher the level of difficulty set, the more wind and lift will affect the flight of the arrows. Know your enemy, shoot first and let the sheriff sort them out. Always lead the prey when casting a net. Get an opponent off balance before hitting him with a power punch and offer no quarter. In the end, remember that adroit and clever moves can stonewall an opponent.

Memory trick

Things to remember: Robin is a memorable man, regardless of his appearance of the moment; Robin should be true to himself; if a room appears furnished, it probably is; don't pass up any opportunity to explore, especially if Robin isn't Robin; become a handy man; study the flora; take an interest in architectural history; remember the language of the Church; if at a loss for something to do then hang out on the main drag.



The now standard Sierra point and click interface is used in **Longbow**, including the variable mouse-selected icons. This means that there is virtually no mechanical learning curve to interfere with the early part of the game.

Mouse controlled walkabout movement is sometimes sluggish and I found it impossible to navigate the hedge maze without switching to keyboard. My feeling is that this is related to my mouse, not to the game interface. If you have a rowdy rodent, do use the keyboard for the maze and for the final arcade sequence. Detailed instructions for both keyboard and joystick control during quarterstaff use are in the game manual.

One of the most challenging segments of **Longbow** is the nine men's morris game that must be played by Robin. The artificial intelligence routine is excellent, and the morris match is just that, a full game within a game. The basic strategy is discussed in the manual and basic instructions are provided. A paper morris game board is included in the package in case the gamer gets hooked! I found the sequence so much fun that I kept a save of the start position so that I can play it any time.

I digress... this is a review, not a walk-through! **Conquests of the Longbow** is a living classic. I am enthralled by the game and have plans to replay it many times to feel again the joy of a tale well told in an absolutely unique way. Here's to Christy Marx for sharing her vision in **Conquests of the Longbow: The Legend of Robin Hood**, and here's hoping she is reading this review while tilting a mug of finest stout in one of the ancient rooms of the Trip to Jerusalem pub. ❑

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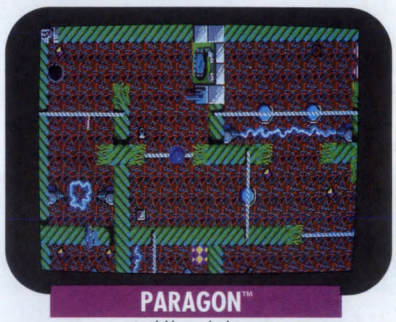

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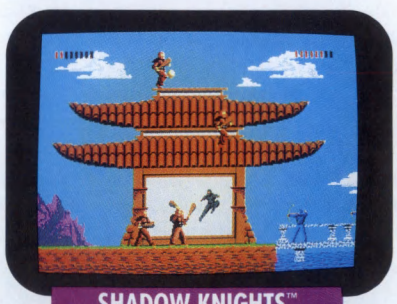

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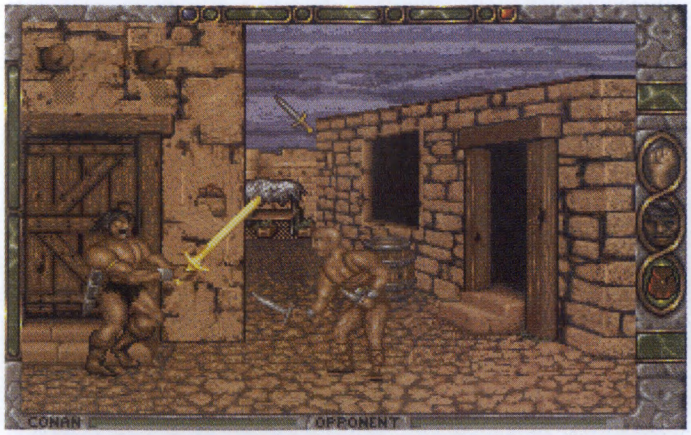


Conan the Cimmerian

Crom! I've cut my bloody swath

By Ian Marsh

Lovers of fantasy games and books will be familiar with Conan, the rough, tough barbarian warrior whose thews are invariably described as bronzed, and whose sword play is legend. It will come as some surprise, therefore, to anyone looking forward to a hard day's reaving, that for the first few hours of play, **Conan the Cimmerian** undoubtedly pictures our hero as a wimp of the first order.

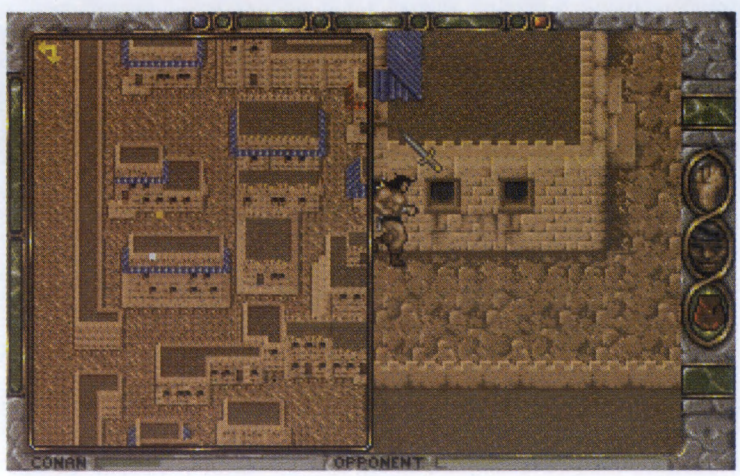
But the fact that Conan is barely able to wield a sword to save his life comes as no surprise, for the game catches the barbarian just as he is about to embark on his career. The evil Thoth Amon, high priest of the snake god Set, has burned Conan's village and killed his wife, piquing our hero to the extent that he might indeed let loose a mighty oath such as 'By Crom, I will not rest until I have killed Thoth Amon' or even simply 'O bother'. Setting off from the ruins of Irskuld, Conan needs to head for the city of Shadizar to find fame and fortune, not to mention someone who can teach him how to be a proper barbarian warrior.

Anyone who has played Virgin's **Spirit of Excalibur** will be familiar with the game interface of **Conan the Cimmerian**. The first view the player sees is a world map, on which Conan is represented by a blob, and cities and salient features are clearly marked. Moving is carried out by clicking on the appropriate icon and then moving the mouse pointer to the destination and clicking again; the blob will duly follow. It's a nice, simple means of travelling over vast areas of countryside.

On arriving in the city of Shadizar, however, instead of the single scene that **Spirit of Excalibur** presents, a tactical scrolling map of the city pops up. The whole effect is analogous to the floor plans beloved of pencil and paper role-players and its immediate effect is to create a feeling of familiarity: the game begins to look like a conventional role-playing game executed sensibly on a computer. At this level the other inhabitants of the city are quite easy to distinguish: there is no confusing the city guards, thieves, merchants, toughs or itinerant old women that seem to be the only people who feel that it is safe to walk the city streets.

If Conan is to progress he must stop and talk to these people, who may, if he is lucky, provide him with directions to where he wants to go; in addition they may offer information about certain people and places in Shadizar; or they may just be plain rude. The alternative to talking is to attack, although only toughs, guards and thieves are suitable targets. Attacking, however, is the worst thing to do before Conan has visited Master Quan, the weapons instructor: Conan just doesn't have the right fighting style to tackle toughs or guards.

Entering a shop, inn or dwelling on the city view, or electing to attack someone brings up the appropriate scene on screen, and allows Conan and his opponents to be seen in full detail. Shop encounters are quite basic. Clicking on the proprietor pro-



Designed by
Synergistic Software

Published by
Virgin Games

Systems
IBM PC, Amiga, ST

PC graphics
VGA, MCGA, EGA, Tandy

Supports
Roland, Adlib, CMS, Covox and Tandy 3-Voice; keboard, joystick and mouse

duces a menu asking whether Conan wants to buy or sell items; when buying or selling the character also gets the chance to haggle for a better price, although the laboured means of doing this is more likely to result in the player settling for a quick sale rather than one that maximizes his resources. It pays to locate different shops that sell the same goods: some offer better prices than others, although against this the player must weigh up the prospect of trekking across town.

Bezant plucker

One thing Conan will quickly realize: he is strapped for cash. There is only one way of obtaining gold bezants, and that is by stealing. Entering the various dwellings may or may not produce stashes of gold or jewels if Conan searches in the right places. But such a dishonest living is not without its perils: the city guards may disturb Conan while at work and cart him off to jail. Whether this happens depends on Conan's stealth skill, which slowly increases with each successful burglary, until the barbarian is virtually undetectable. The trick is to save the game just before entering a building and, if Conan is caught, restoring the game and plunder the location again.

Fighting takes some time to master, at least using a mouse and an inexperienced barbarian. I found it was easiest to use the keyboard to control fights, and to use the mouse to move quickly over the city map. Chop, swing and thrust are the three fighting techniques that can be learned, and each is has a particular use against different opponents. Thrust, for example, seems to be most effective against toughs and the lizard creatures in the catacombs beneath the city; chop works against city guards; swing neatly decapitates thieves. It's very much a matter of try and die until the player gets it right.

Worst of all, some wretched opponents can only be harmed by certain weapons. The Grey Assassin, who lurks in a rooftop dwelling, seems invulnerable to that tempting enchanted sword that the weaponsmith has on offer, but is easy enough to beat armed with a brass sword.

Again, the technique is to save on the city or catacomb view before picking a fight; that way, the player can learn from the story-teller Akado what went wrong, restore the game and try again. Akado kindly appears whenever Conan dies, and his clues are valuable. The adventurer's watchwords at all times are clearly save and restore.

Visiting temples and inns is the way to find the real adventures in the city. The temples are often missing objects that need to be retrieved, and the rewards of success are great. The really atmospheric adventure is provided by Taurus, former master of the Thieves Guild, and involves a proper swords and sorcery romp through the bowels of the Temple of Set.

The large paper map of Shadizar is an indispensable aid to getting around the city, and should be filled in by the player as various shops and so on are discovered. Without the map the city becomes very much a confusing array of sand-coloured blocks with red or blue awnings. It is possible to buy maps of various locations from cartographers, but not all of these appear to be accurate, and quite honestly the player is better off just blundering around and finding his own way.

Shadizar provides quite enough for a beginning character to get the hang of. Once Conan has accomplished a couple of quests and become skilful enough to defeat the serpent in the Temple of Set, it's time to think about moving on to exact his revenge on Thoth Amon.

I confess I didn't think much of this game when I started. Computer role-playing games have so little to do with role-playing itself that I'm biased against them, especially when they are as badly executed as **Savage Empire** and **Space 1889**.

Hidden numbers

Conan the Cimmerian, however, seems to have learned something of the correct approach: the figures representing characters and non-player characters are easily differentiated; the interface is simple to use and largely hides the numbers from the player, who quite honestly should want to get on with the game rather than worry about hit points and damage bonuses; and the player's attention is focused on but one character, avoiding the complications of multi-character groups.

There are glitches, such as the apparent uselessness of some of the maps, or even one dramatic moment when Conan ended up levitated above a priest of Set, doing battle with a fearsome error 43 message, but I never know what to put down to bugs or playing the game on an 'IBM compatible'.

After the half-hour battle with the combat interface, which was largely owing to Conan's lack of ability, I quickly settled into the game, and developed a real feeling of progress, such that I played the game for 10 hours solid. And that hasn't happened since I tackled **Eye of the Beholder**. ❑

SCHOOL FOR SCANDAL

Greg Ellsworth on grifts and tips for Spellcasting 201: The Sorcerer's Appliance

If the player is reading this, it probably means that he has hit a dead end while trying to solve one of Ernie's initiation assignments, or he can't figure out how to outwit the villain in the tightly timed end game.

This column should help to get the aspiring sorcerer back on the right track, without giving the complete solution to the puzzle. The clues are organized in such a way that the player should be able to get the help he needs without reading the entire article.

First, some general advice. Important information can be obtained from the classes, and reading Ernie's notes carefully may give the player a push in the right direction. As long as Ernie takes his notebook into class at the proper time, he will automatically write a brief sentence for each paragraph of text that is displayed. The player may review these later by typing READ NOTES.

The player also must attend the Alchemy 301 class in order to perform the Turtleshell iron to copper transmutation; this is absolutely essential for later in the week. Don't forget the first rule of any adventure game – pick up everything that can be taken. Almost every object in the game has a purpose, no matter how unlikely it seems at the time.

The daily school newspaper, while humorous to read, also contains clues that should help the player solve the daily puzzles.

In Ernie's bedroom is a ventilation duct that will allow him to eavesdrop on Chris Cowpatty and get advance warning on what the next day's initiation assignment will be, and what underhanded sabotage the pledgemaster is planning to ensure that Ernie fails.

Sunday

Ernie should spend this 'free day' becoming familiar with the campus, and learning the shortest routes from one location to another. The most important event on that happens today is the meeting with President Otto Tickingclock at 9:00 pm. Not only will the player learn valuable information concerning the Sorcerer's Appliance, but he also gets the DEPLUMIT spell which won't be used until Friday.

After the meeting, be certain to get the key to the laboratory, then return to the Hu Delta Phart lobby and examine each of the objects in the display case.

Listen to Chris through the duct in Ernie's room then go to sleep; the real challenges start on Monday. The player also should look through the janitor's closet in the Student Union, reading the how-to book and examining the glass case which holds the WOOSH spell box.

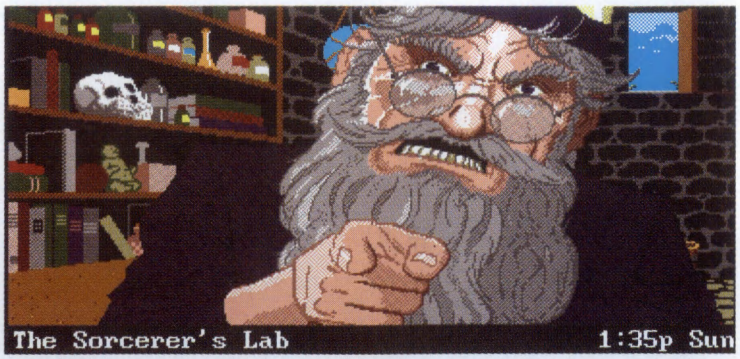
If he attempts to break the glass case, he'll discover the first of the many devious Meretzky puzzles. Remember what Tickingclock said about the Appliance playing a key role on each of the next five days?

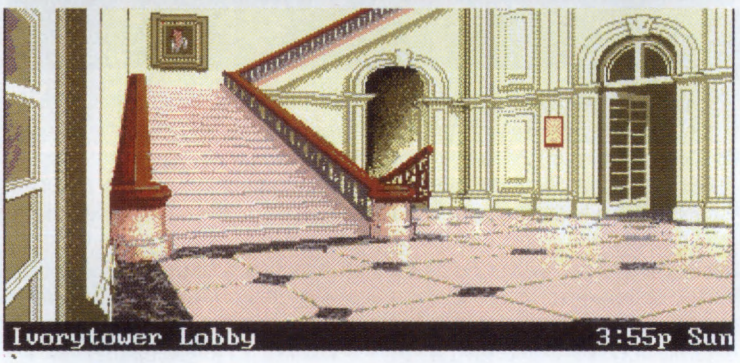
Monday

After Ernie's fratmates drag him out of bed and the pledgemaster assigns him his first task, the player should spend the time before his first class tinkering with the Appliance. If the player met with the president on Sunday night, examined the items in the HDP trophy case, listened to Cowpatty through the air duct and looked around inside the janitor's closet he should have a pretty good idea how to put the mustache on the clock tower statue. For a further clue, Ernie should read the school newspaper.

Pay attention to both of Monday's classes, and be sure to perform the iron to copper transmutation. Use the Sorcerer's Appliance to gain an item which will allow Ernie to get the WOOSH spell box, then he should be able to complete his first initiation assignment with time to spare. On the way back down from the tower, the player discovers an important item and the FOGWACKA spell box which he can only reach when the 'time is right'.

Return to the HDP fraternity and enjoy Chris's reaction when he learns of the successful completion of the





first day's task. Before turning in, listen to the air duct to learn about Tuesday's mission.

Tuesday

The early afternoon class today is important to Wednesday's task, and the player should not skip it. Kidnapping the TKB mascot is a complex puzzle, and the player will need several items to solve it. Read Ernie's General Magic 201 notes carefully, especially the part about the stealth properties of certain Pelorian flora.

The player should have another Greater Attachment for the Appliance from Monday's initiation task, and he should go see what new function is activated by it. Setting the dial properly and pushing the proper buttons will produce the required plant for some sneaky work.

Next, read Ernie's Alchemy 301 notes carefully to determine which compound will be useful to gain the affection of the mascot. When Ernie left the HDP house this morning, he should have overheard part of a conversation between Professor Moldybreadcrust and his student. Look in the teacher's office desk drawer and get the SRINKO spell.

If the player has been taking everything in sight, he should have the PISEKS spell from the HDP trophy case. He has one last stop to make before undertaking his mission, and this will involve great bravery on his part. Go to the cafeteria and try the veal casserole surprise. Keep sampling it until Ernie discovers what the 'surprise' is! If he uses the spell of maturation on his new pet, he'll have a reliable light source and is now ready to take the elevephant to Tickingclock's bedroom.

First, use the plant that the Appliance produced to enter the TKB mascot room unseen. Expose the animal to the scent of the transmutation compound, then reduce him to a manageable size. The player should then release the beast, but he'll not be able to get him out the front way. Now he must examine the map that came with the game, and use magic to enter the underground sewer system. The enamoured elevephant will follow, and Ernie should immediately find an object to allow him to see his location once he activates it.

Following the map, Ernie can avoid the active sewer nodes and by logical reasoning determine how the valves operate. His destination should be the Main Processing Plant at coordinates J1, where he finds the UGUGOOWAH spell box. Following the only exit, he and Babar will be washed out to find themselves at the Boat Dock outside the President's House. Lead the mascot upstairs, leave the object of his affection there then return downstairs and retrieve the next Greater Attachment.

It's been a long day, and Ernie can rest easy having completed another day's task. Once again, eavesdrop on Chris' plans via the air duct.

Wednesday

Compared to Tuesday's stunt, today's task is relatively easy. Ernie must get the TKB partygoers to jump into the pool during the Sacred Champagne Toast. The key to this is the musical mood-altering device that the player was taught to use on Tuesday.

Looking through the manual that was included with the game, the player should discover the proper musical piece for this puzzle. To play the correct tempo, he should consult his General Magic 201 notes, then use the level two power level of the Appliance to produce one of the ingredients.

Using the Attachment obtained on Tuesday, he should be able to activate the next function and create the necessary mammal. Getting it to produce the second ingredient is easy if the player still has the cafeteria 'food', as it seems to have a weaker constitution than Ernie. Putting both ingredients in the mixing bowl from the alchemy lab will make the required potion.

Go to Sorcerer Stadium and wait for the TKB guards to show, then sneak past them to the pool room using the method used to get by Lyle.

Carry only the musical instrument and the potion, then use them to play the proper composition during the Sacred Toast. Afterwards, retrieve the fourth Attachment, and then prepare to witness the pledgemaster's reaction. ❑

Greg will conclude Ernie Eaglebeak's adventure next issue

MAMA SEZ...

It's time to party

There you are, tossed in an incoherent lump on a bar stool in a strange tavern. Your money is gone, and – oops! – so are your clothes! And your name... what is your name? Who are you? What can you do? Why are you here? Where are your pals? Mama sez not to worry, roll those phantom dice and get a life!

Roll yourself four, six or eight lives, depending on the game you are about to play. In most role-playing adventure games you must create an alternate 'you' and then find or create a group of trusty companions with whom to journey to the end game. On the way, you must all become better prepared, better armed, more skilled and, hopefully, richer.

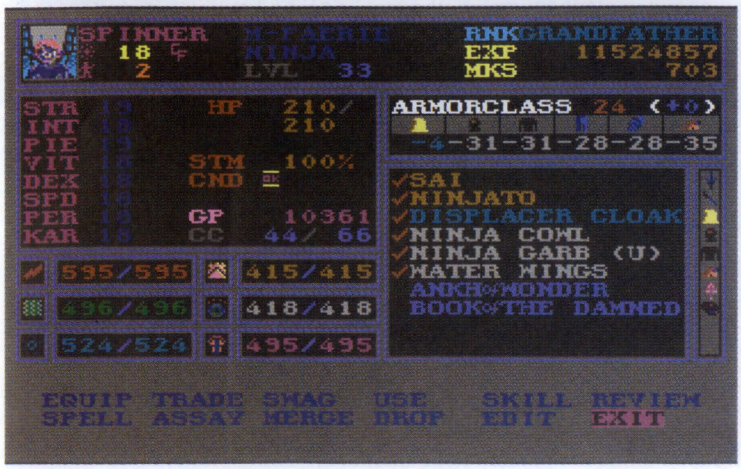
Mix and match

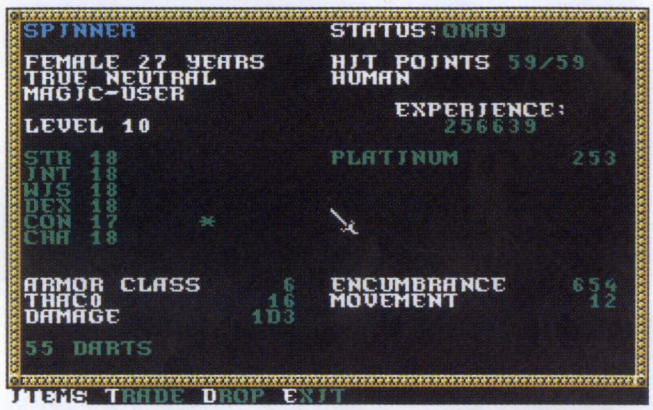
Where this crew begins in terms of skills and characteristics will determine how well they fare during the game. A good variety of skills and races in the party will usually mean higher scores and more successful combat sequences.

Speaking of rolling, this is not an invitation to mug the computer. This is how most games set up character strengths and attributes. Important character statistics and skills are given a 'best' value and the computer-generated random numbers are rolled for each character. Depending on the type of character, keep rolling until attaining the highest number in the most important skill for each character.

Skilful approach

Depending on the occupation you have chosen for a character, some skills are more important than others and you should roll for the highest value in the special skills. Thieves should be dexterous, quick and neutral if possible. Magic users should be dexterous and wise. Healers and paladins (good at defensive spells) should be pious and have high charisma or karma to get the gift of gab. Fighters value speed more than dexterity, and strength above all.





Same name, different game: Spinner for Wizardry 6 (below) and Secret of the Silver Blades (above)

Big Bad Mama gives some pointers to newcomers to character creation

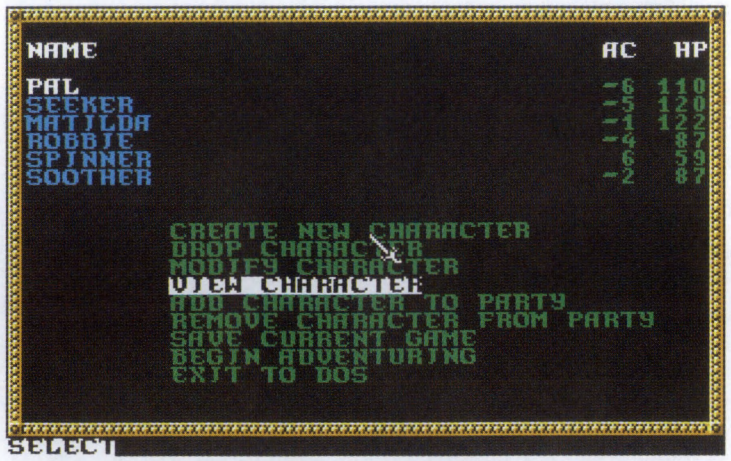
Nearly all role-playing game characters are based loosely (or firmly) on **Advanced Dungeons and Dragons** (AD&D) rules. These 'rules' place restrictions on the activities and skills that character types are allowed. The basic party usually consists of at least one each fighter, thief, cleric and mage (sorcerer).

Many games allow several classes of fighter such as knight, lord, paladin, valkyrie and garden variety dragon meat. Some offer multiple classes with nefarious skills such as lockpicking and backstabbing. Many gamers favour a ninja rather than a simple thief because of the added combat skills, but not all games have a ninja class.

Clerical work

Clerics come in many guises: some are pure healers, some owe all their powers to specific gods or temples, but most provide protection, solace and insight to the party. Mages or sorcerers are a powerful lot and usually carry most of the offensive magic skills in the party.

Clerics are usually restricted to weapons that can not pierce or punc-



Let the party begin: Secret of the Silver Blade's party screen (right). The darker side of character generation: Pools of Darkness (below)

ture which means they must use a sling rather than a bow for ranged combat and a staff, mace or flail for hand-to-hand combat. Mages and sorcerers are adept with the same weapons as clerics and can also use daggers and darts or arrows, but their choice of armour is severely restricted.

Pick a paladin

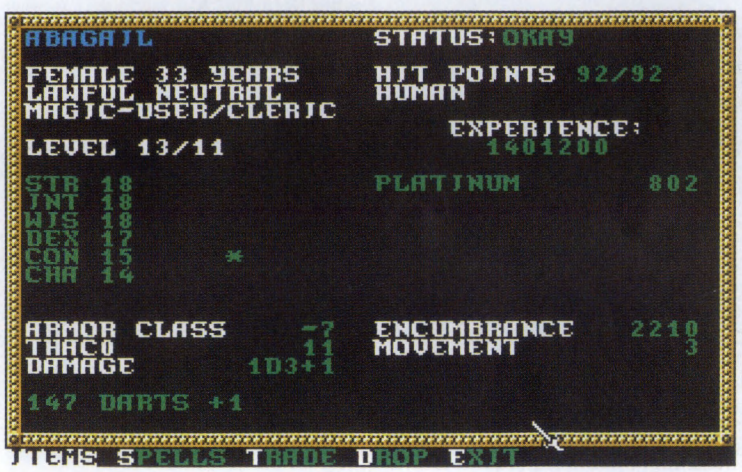
In games that allow the class, paladins are an excellent choice as one of the fighters. They must be good, and in some games, they are not permitted to join any party that has an evil member. Their goodness allows them to acquire clerical skills in the healing arts after several levels of fighter have been achieved.

Some games allow multiple class characters. While such characters advance at a much slower rate than single class party members, the added power is worth the wait. If multiple classes are allowed, a good balance can be provided by having a pure fighter, a pure thief, a paladin (fighter-cleric), cleric, mage, and mage-cleric or fighter-mage. When available, ranger skills combine well with clerics or fighters and give the added dimension of offensive magic spells to the character.

The marching order of the party should be governed by how well each character can participate in hand-to-hand combat and by the number of hit points and the armour classes of the characters. Characters with the most hit points go first if they can wield a close quarters weapon. Characters with low hit points and little armour protection should bring up in the rear. The rear guard is usually composed of cleric and mage. Some games allow only the first two, three or four characters to participate in hand-to-hand combat, other games allow all characters to join the fray.

Transfer fee

Character transfers from one game in a series to another are a popular device. Many gamers have a favourite individual or team of characters that travel through every game. Mama's regulars include: Wilder, the fighter; Robbie, the sneak; Basher, the fighting cleric or paladin; Matilda, the female terror; Serena, the cleric; and my alter ego, Spinner, weaver of wonders and teller of tales.



Keeping the same set of characters throughout a series of games is sometimes not a good strategy. A real kick-ass party in **Champions of Krynn (COK)** is totally ineffective in the sequel, **Death Knights of Krynn (DKK)**, because the monster types are so different in the two games. In **COK**, powerful offensive magic and skilled fighters are essential. In **DKK**, there are so many undead to be conquered that at least two, probably four, characters with the ability to 'turn' the undead or cast defensive spells are needed.

Minor changes

Many games provide a pre-rolled cast of characters, most of which can be modified at the beginning of the game. Modification can be as minimal as assigning each a new name or as radical as changing class, race, or statistics. Always save the pre-rolled party before modifying them, just in case you change your mind about what is important for game play.

While pre-rolled parties are convenient and a good way to learn the workings of a game, the real adventure begins when you roll your own crew from scratch. The more races and professions available, the more fun this becomes.

One of the most challenging assortments of character types available is in **Bane of the Cosmic Forge (Wizardry 6)**. In addition to the regularly available classes of fighter, thief, cleric and mage, **Bane** allows for alchemists, monks, bishops, lords, rangers, bards, psionics, samurai, valkyries, and the ever-effective ninja. Along with this choice of professions, the characters can be of several races: human, elf, dwarf, gnome, hobbit, faerie, lizardman, dracon, felpurr, rawulf, or mook.

The hardest combination to roll is a faerie ninja but keep at it until you do. This turns out to be the Mama of all characters by the time the end game rolls around. A faerie ninja is the roll assumed by Spinner in all of my **Bane** adventures. Spinner the faerie ninja is ready to take on **Wizardry 7: Crusaders of the Dark Savant**, real soon now!

Mama sez... the next time somebody yells 'Party time!', roll your own. ❑

TOP SECRET
KGB
To ALL NEW KGB AGENTS
From CENTRAL CONTROL
Special Instructions:
DESTROY INFORMATION ONCE
RECEIVED AND REPORT TO YOUR
COMPUTER TERMINAL FOR FURTHER
INFORMATION ON YOUR MISSION
It's your first day at Department P, Moscow KGB and you can't help but think that whoever arranged for your transfer here either has a strange sense of humor or hates your guts.
Despite all the upheaval in the Soviet government in recent years, the KGB, or Committee for State Security, is still the most feared and pervasive intelligence-gathering network in the world. Only now the KGB itself is under secret surveillance - by you!
Questions lead to more questions but one thing is clear - the KGB reeks of corruption and you're about as safe as a long-tailed cat in a room full of rocking chairs. Be advised, comrade - you must act quickly and shrewdly to uncover the conspirators before they uncover you.
FEATURES:
* Movie-like storyline filled with surprising twists and intrigue
* Intuitive Icon-based Interface - that means no more wading through menu after menu
* VCR-style "REWIND" option for keeping track of important clues and information
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СССР
-1991-
ПОЧТА

Reader Service No. 98

LEV 03 P.P 28 H.P 16 EXP 0454
Put down your weapon, after all it's only me. It will take more than the one brain cell you've got to unravel the mysteries of this place.
INV
UP DOWN

Elvira II

The jaws of Cerberus

By Greg Ellsworth

Produced by
Mark Wallace

Designed by
Mike Woodroffe, Alan Bridgman, Simon Woodroffe

Published by
Accolade

Systems
IBM PC, Amiga

PC graphics
EGA, VGA, MCGA, Tandy

Supports
Adlib, Sound Blaster, Roland MT-32 and LAPC-1

First off, let me say that games with real-time action or arcade sequences are not my favourites, especially when I find them in adventure games. The trend, however, in many new games is to include these sequences, so one has to learn to cope.

Some companies, such as Sierra On-Line, have been thoughtful enough to include a bypass feature for their arcade sequences, and I for one wish more software houses would follow suit. **Elvira II**, in case you hadn't guessed, does contain real time combat, but objectivity is the order of the day here so the game will not be dammed for that.

In this sequel to **Mistress of the Dark**, the player must enter Elvira's 'Black Widow' Studios to find and rescue her from the three-headed mythological hellhound Cerberus, who intends to sacrifice her at dawn in order to use her magic powers for evil.

Elvira still has a limited ability occasionally to send a magical message to her rescuer, and this takes the form of a vision in which she gives the player a push in the right direction. This was *too* helpful in some instances, but did help me know to look for a needed object that I wasn't able to spot in one of the first dark outdoor scenes.

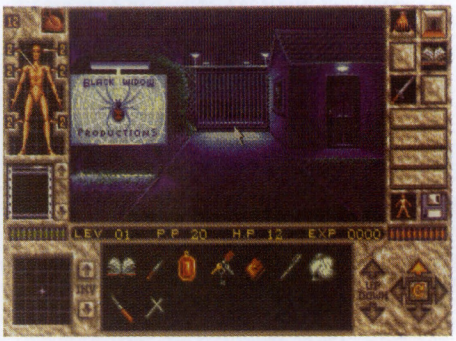
There are four professions from which the player can create a character: stuntman, private eye, computer programmer, or knife thrower. Each profession has its own strengths, and the character's abilities progress at different rates according to the player's choice. The statistics increase as the player gains experience, and experience is gained not only from defeating creatures, but also is accumulated at a constant rate as time passes.

The character equips himself with simple weapons and casts spells mixed from Elvira's spell book, using items scattered throughout the movie studios.

Spelling lesson

The ingredients for a spell are expressed in general terms, such as 'three metal objects' for a protection spell, or 'any combustible substance' to make a fireball. This magic system adds an extra challenge for the player, since a spell has a limited number of uses and some of the ingredients are one of a kind, are difficult to find or even to recognize for what they are.

The combat system is real time and simplistic: the player simply selects a mode of attack and clicks the cursor on the animated monster. While the player's overall health is



displayed by the standard hit point method, damage to the character is divided among the body parts, and this is a more realistic way of representing damage to the player.

When an arm is disabled, carrying ability is reduced. If the player's legs are injured movement is inhibited, and when the head and chest take sufficient damage the character dies with a gruesome graphic displayed.

The game display includes indicators that show in relative terms how hard the player hits the creatures, and how hard they are hit in return. Other graphics include a radar which shows possible positions of hostile creatures, a 'tell-tale heart' that indicates danger, and a figure of the player's body which shows the status of the different body areas.

Speaking of graphics, this is probably one of the game's most attractive points, especially if the player likes really ghastly ghouls and grisly illustrations of dismembered corpses. When the character is killed, the body is displayed in gory detail, appropriate to the manner in which he met his maker. I suspect this game may have been intended to be a Halloween release, instead of a Yuletide offering.

Sauce boat

Elvira herself is shown wearing her skin-tight dress, cleavage prominently visible. Her dialogue is saucy and sarcastic, as she addresses the player as 'moose brain' and makes other derogatory or sultry comments, in keeping with the image of the well-developed character that her fans have come to know.

The game is fun to play, with macabre surprises waiting to spring out as the player opens a door or turns a corner. The puzzles and combat aren't too difficult, but the practically non-existent story line and lack of a intriguing plot were rather disappointing.

The player can become trapped in a situation without the proper items to escape, and this sometimes required restoring a saved position from quite a way back. This can be very frustrating for some people, but may pose a desired challenge to others.

With the graphic illustrations, appropriate music and sound effects, combined with Elvira's own special touches, **The Jaws of Cerberus** was a light-hearted adventure that I liked playing despite my difficulties with the interface and dislike of real time combat. Game designers should keep in mind that some players may not wish to play what could be a fun game if the action sequences are too difficult for them. ❑

YOUNGER THAN YESTERDAY

The history of computer games, by Chris Crawford. Part two: the Atari years

The decade of Reaganism, the 1980s, was a period of rampant greed and materialism – a decade in which America searched for its soul and came up empty-handed. The new decade also marked two major developments in gaming: the videogame explosion and the coming of age of computer games.

Atari and videogames

I joined Atari in September, 1979, and at that time the success of the Atari 2600, the original videogame console, was very much in doubt. I recall an engineering department meeting that autumn, in which the entire engineering staff of Atari gathered in a single room to hear the vice-president of engineering present a summary of the company's position.

Sales of the 2600 were adequate to justify continued software development; the 400 and 800 had just been introduced and the company had high hopes for these machines. Fortunately, the coin-operated games group was making steady profits that could keep us afloat. And parent company Warner Communications had deep pockets.

The creative source for game designs in those days was the coin-op business. If a game did well in the coin-op business, it was ported over to the cartridge environment. All of the big hits of those days were originally designed as coin-op games. For example, **Space Invaders** started life as a Japanese coin-op game. Atari bought the rights to the game, and Rick Maurer designed an absolutely brilliant port to the 2600, where it became a big hit. Sometimes, however, this process didn't work. When Atari ported **Pac-Man** to the 2600, the result was so bad that critics dubbed it 'Flicker-Man' and customer disenchantment with Atari ran deep.

Although the aforementioned games were both Japanese designs, Atari Coin-Op created quite a few hits on its own. **Missile Command, Centipede, Battlezone** and **Tempest** were some of the most successful games. Some of these were later ported to both the video game and the computer game environments.

It's difficult to realize just how much the coin-op

mentality dominated game design. Coin-op games were all designed to last for three minutes, for perfectly sound economic reasons. This was carried over into cartridge games and disk-based games, even though the value of a three-minute termination on these platforms was nil. Designers just couldn't conceive of a game as anything other than a coin-op game that you played at home.

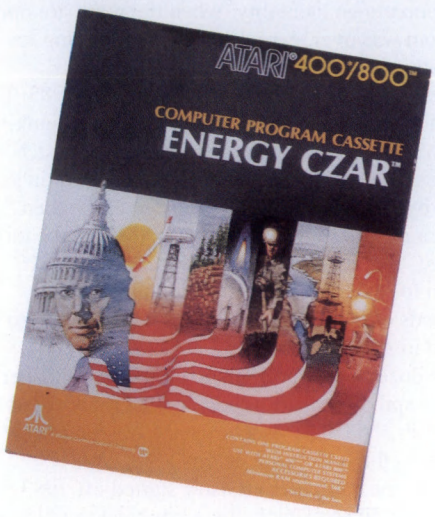
Computer games

Meanwhile, computer games were enjoying growth that was rapid, although not as spectacular as that of coin-op games and cartridge games. More important, computer games were already showing greater creative diversity and a more mature form of game. Automated Simulations was just starting on its fantasy role-playing games, culminating in the Temple of Apshai series. Scott Adams released his adventure game series on cassette tapes. SSI created quite a stir when it released **Computer Bismarck** at $59.95. This was an absurdly high price, especially in 1980 dollars, but enough people bought it to keep the company going, and it released a series of wargames over the next few years, all on the Apple II.

At about the same time, Ken and Roberta Williams were selling their graphic adventures, starting with **Beneath Apple Manor**. Doug Carlston was designing, programming and selling his own games, also on the Apple II.

With the benefit of hindsight, and a healthy dose of historical revisionism, it is easy to see that the Apple II was destined to surpass its competitors. But it didn't look that clear in 1980. The Apple II was an expensive machine, a favourite of hobbyists with money to spend, but many computer junkies preferred the less expensive TRS-80 and Commodore PET.

The Apple's big advantage in the early days was its colour display, but this advantage was shattered with the appearance of the Atari computers, whose graphics far outshone that of the Apple. The Apple had a better disk drive (by dint of violating FCC regulations) and a larger software base. But the really big break came when **Visicalc** appeared on the Apple in 1980. **Visicalc** gave the Apple II a big advantage. The program was eventually ported to other machines, but it took about a year, and in that time the Apple II established a huge lead.



Despite all this activity, computer games were still in a primitive state in 1980. There was only a handful of developers and publishers. The supply of games was desperately short; the release of any new game was eagerly awaited by computer users. The games available were not very good. Almost all were written in BASIC. They were slow and used almost nothing in the way of graphics. Moreover, since most had to run on machines with about 8K of RAM, they were quite limited.

The distribution and retail outlets were primitive. Many games were sold by mail order; a typical game would be lucky to sell more than a thousand units.

1981: Rolling

The computer games industry perked up dramatically in 1981. Many of the basic problems had been solved; there was now a sizeable group of people who knew how to create, program, publish, and distribute computer games. Game production accordingly took off.

A number of publishers released multiple products in 1981: Automated Simulations, SSI, Avalon-Hill, Brøderbund, Adventure International, and several companies in southern California whose names I have since forgotten. It was a banner year for me: four of my programs were published in that year: **Energy Czar, Scram, Tanktics**, and **Eastern Front (1941)**. (Note, however, that those four products represented two years' work.)

Meanwhile, video games and coin-op games continued their own steep growth. The Atari 2600 was enjoying sensational success, but it was growing from a small base. The emphasis on coin-op games continued, although there were a few non-traditional video games. The most striking of these was Warren Robinett's version of Adventure (programmed in 1979 but not released until late 1980) an astounding achievement on the 2600 that gave rise to many derivative games.

The year also saw the birth of *Computer Gaming World*. We were starting to become a real industry, and now we had our own magazine. Still, 1981 was a year of waiting, of gathering momentum.

1982: Anno Mirabilis

Everything exploded in 1982: video games, coin-op games, and computer games. *Time* magazine put video games on its cover. It's difficult to convey the wild goldrush feeling that pervaded the industry that year.The most sensational developments were in the videogame field. Atari sold $2 billion of hardware and software that year; Atari's sales were doubling every nine months. A wild frenzy set in; everybody was working onvideogames.

Scores of companies published video game cartridges. Some were good, many were bad, but it didn't seem to matter. The public bought whatever was on the shelves. Companies that had gotten in early made sensational profits. Atari released **Pac-Man** for the 2600 that year. Despite the fact that it was a poor implementation, Atari sold 10 million copies of the game at $20 wholesale, with a cost of goods of just about $5, and a development cost of perhaps $100 000. You figure the profits.

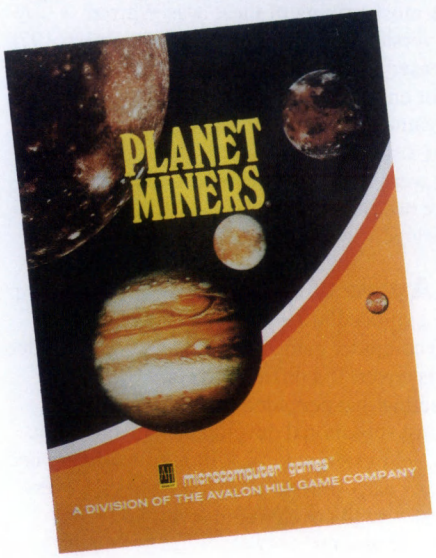
The most important requirement to make video games was to find a programmer who knew how to program the Atari 2600. This machine was hell to program. There was no display buffer – the display was created as needed by the 6502 CPU. There was a video display chip that displayed one scan line at a time. To get a display, you wrote a program that frantically stuffed bits into the display chip at just the right time. If you were really good, you knew how to change the display registers to allow more sumptuous graphics. But this took exquisite timing. The 6502 in the 2600 ran at 1 MHz; at that speed, you had exactly 77 machine cycles during one scanline. The main display loop had to execute each scan line in 77 cycles or less.

Really good 2600 programmers knew the instruction cycle counts of the 6502 by heart; they tweaked their code to squeeze one last cycle out of it. The game logic itself had to be executed during vertical blank, when there was no display to manage. This gave about 3,000 machine cycles every 60th of a second, as I recall.

Great 2600 programmers were worth their weight in gold, and publishers quickly realized this fact. There was intense competition for the old pros. Activision was most successful at this, sending limousines to pick up its programmers, featuring them in promotional campaigns, and making them feel like kings.

The coin-op business enjoyed a parallel boom, only not as lucrative nor sensational. Still, those were good times to be in the coin-op business. Good programmers were earning very high salaries, royalties on their work and all manner of other perks. Those were the days.

In the computer games business, 1982 was also a great year. The fabulous success of video games carried over to computer games, but along with that success came a sudden emphasis on skill-and-action games. It was as if all the computer owners suddenly decided that they wanted to be in on the excitement of the video game field. The serious computer games that had been developing during 1981 were overshadowed by the more graphically intense but intellectually inferior shoot-em-ups.



Still, everybody prospered. You could make a great deal of money out of a program that took very little time to develop. An extreme example of this was Greg Christensen, a high school student who hacked together a variation of **Defender.** He did it with the Atari assembler cartridge over the course of several months, working nights and weekends. When he was done, it was published by the Atari Program Exchange as **Caverns of Mars** and it sold about 50,000 copies, earning Greg something like $80,000.

My own **Eastern Front (1941)** enjoyed similar success; it was developed at home, nights and weekends, over a six-month period. I put about three months of full-time effort into it and earned something like $90,000 for the product.

Even more sensational success stories can be related about games for the Apple II during 1982. Programmers like Nasir Gebelli, Bill Budge, and Bob Bishop made hugesums on games that they hacked together in months. Nasir Gebelli was particularly productive. He ground out a series of Apple II games that enjoyed high sales figures. Most of his games played poorly, but each one sported some neat new graphic effect. People loved it and plunked down their money. Yes, 1982 was a fabulous year.

1983: The crash begins

The storm clouds gathered in December 1982. Atari executives briefing Wall Street analysts admitted that sales for that Christmas were off slightly. Realizing that the boom was over, they dumped their stock in Atari's parent company, Warner Communications. Sales that Christmas were still good, better than the previous Christmas, but it was obvious that the boom was over. In any other industry, it would have been a simple matter to retrench slightly, cut costs, and weather the lean times. But the video game industry had a boomtown mentality; when the word got out that the boom was over, everybody started looking for lifeboats.

Things grew steadily worse all through 1983. The market was glutted with product, much of it junk. Atari was just as guilty as everybody else. Its *ET* cartridge was a piece of crap thrown together in six weeks by a programmer who boasted to Stephen Speilberg, 'This is the game that will make the movie famous!' Ray Kassar, Atari's CEO, had paid $20 million for the licence. In the end, hundreds of thousands of unsold *ET* cartridges were bulldozed in a landfill in Albuquerque.

The dozens of opportunistic cartridge publishers that had sprouted liked weeds in 1982 died just as quickly in 1983. The fiscal carnage was on a scale just as great as the boomtime profits.

The home computer industry started off 1983 with high hopes. Everybody believed that the troubles of the

video game industry would only lead consumers to move up to home computers. The TRS-80 and the PET were long since dead, and the field had narrowed to the Apple II Plus and the Atari 800. There were other challengers, of course: the Radio Shack Color Computer, the Commodore 64, the Coleco Adam, and the looming IBM Peanut. But these other machines did not have the market share or software base to make them major competitors.

At the beginning of 1983, it looked like a simple head-to-head competition between Apple and Atari – and Atari was steadily gaining ground. Its software library was nearly the equal of Apple's and was growing faster. Moreover, developers had learned how to use its advantages to their fullest, so we were starting to see software for the Atari that was clearly superior to anything running on an Apple.

Then Jack Tramiel at Commodore began a price war, steadily ratcheting the price of the Commodore 64 downward. Atari elected to follow suit; Apple disdained to do so. All through the spring and summer of 1983 the prices marched downward, much to the delight of consumers. Atari, desperate to keep up with Commodore, moved its manufacturing overseas. The disruption in supplies was not repaired quickly, and when Christmas 1983 came, the only machine on the shelves in quantity was the C64. This was the death-blow to Atari; the company collapsed seven months later.

Apple's refusal to lower its prices proved to be the right move. Even though its machine was patently inferior to both the Atari and the C64, it maintained an aura of respectability from its high price.

The Atari and the C64 were seen as toys, while the Apple II Plus was perceived as a personal computer. This may have been one of the reasons why Apple later refused for so many years to lower the price of the Macintosh.

1984: Death and birth

The video game industry died in 1983; home computer sales boomed in Christmas 1983. Nevertheless, entertainment software sales for disk-based machines died in 1984. At the time, it made no sense. Those of us in the home computer industry had thought that, with the death of video games, the mantle had been passed to a new generation: us. Instead, video games dragged us down with them. Computer games were too closely identified in the public mind with video games.

The dramatic collapse of the video game industry convinced everybody that this had been just a passing fad. They turned their backs on everything.

The damage was greatest in those areas of computer gaming that were closest to video gaming. Most of the small publishers, and all of those who had specialized in skill-and-action games, went out of business. Those that did survive did so by cutting costs and having something other than games, or at least something more serious, to keep them going. Brøderbund had **Print Shop**; Electronic Arts had moved quickly to the C64; Sierra just barely eked by; SSI kept its head down and later moved to the **D&D** licence. Many more publishers simply disappeared.

A great many good people lost their jobs and their careers in the collapse. A few, like Ann Kelsey, Jim Dunion, and Bill Carris lost their lives shortly afterwards, and I will always believe that it was the stress of seeing everything collapse that caused this. An entire generation of games people was blown away in 1983–4.

Only a fraction of that generation hung on, largely by fierce determination. There certainly wasn't any money. There were some positive notes during those grim years. Anybody who had C64 product did well. One publisher, Human Engineered Software, prospered during 1984–5 largely on the strength of its C64 line. Epyx also did well, for much the same reason. Infocom, publisher of high-quality text adventures, also did well during those years, largely because its products were so clearly distinct from video games.

Atari had created the boom and it died in the collapse. The layoffs began in earnest in 1983. From a peak of 10 000 employees in December 1982, Atari fell to just 200 employees in July 1984. I was one of the lucky ones; I lasted longer than most, not getting the axe until March 1984.

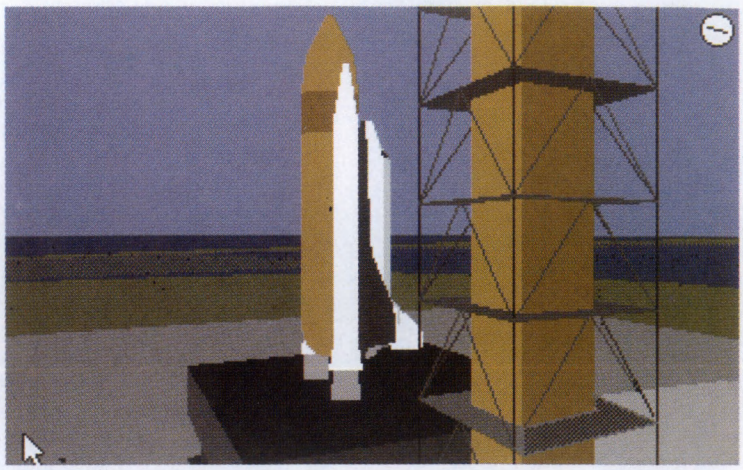
In January 1984 Jack Tramiel resigned from Commodore. Realizing that Commodore had been the chief cause of our woes, I had posted a note on our department bulletin board: 'The good news is, Jack Tramiel has left Commodore. The bad news is, he's coming here!' Little did I know how right I was. In July, Tramiel bought Atari from Warner Communications for a song and laid off most of the remaining staff.

A new age

Out of the ashes of the industry collapse of 1984, a new entertainment software industry began to emerge. Because the videogames business had been so thoroughly discredited, Nintendo was able to enter the market with no competition and rebuild the video game industry in its own desired image. The C64 died within a few years, its place taken by the IBM.

The industry that emerged by the late 1980s was a more sober, more conservative one. Chastened by the catastrophe that had struck down so many, the survivors went about their work with less self-assurance and a heightened sense that bankruptcy is just around the corner. ❑

Part three continues next month.



Shuttle

Magniloquence at Mission Control

By Steven Wartofsky

Programmed by
Vector Graphix

Published by
Virgin Mastertronic

Systems
IBM PC

PC graphics
VGA, EGA, CGA, TGA

Supports
Adlib and Roland sound cards; keyboard, mouse, joystick

Notes
Hard drive and DOS 5 recommended

It comes with two manuals, a fold-out poster, and full on-line help options. The demo cycles in incredible detail through an entire mission from lift-off to re-entry. And even though the present release version contains no less than 22 separate panels from the real space shuttle (all of which are operable), the documentation makes it clear that this is just the beginning.

The most immediate reaction to **Shuttle** is that the simulation feels like some genius child's school science project gone wild; it presumes an abiding fascination with the detailed aspects of NASA engineering and technology. I can remember the good old days of the Apollo program, when sitting for hours near a cheap little black-and-white television set monitoring the latest moon-walk was the last word in high-tech entertainment. Primitive drawings were presented by the news media in an attempt to capture the dynamics of the sequence of events, reduced by Mission Control to a number of breakpoints and procedures followed through with incredible seriousness and accuracy.

Then there was **2001: A Space Odyssey** in 1968, which made such a mass impression that its opening theme music was used to sell everything from aspirin to nappies for almost five years afterwards. Outer space was cool, the land of dreams and an ultimate fantasy of what peace and contentment the manipulation of futuristic technology could provide. Even death and the emergency shutdown of the primary computer system would all take place in a slow, quiet ballet of light and motion.

Spaced out

So where are we now? Space is the great escape, the next frontier for those bored with the bomb, a photo opportunity for Jupiter and Neptune, something off-limits to everyone except scientists, militarists and desperate businessmen. The space shuttle, a marvellous feat of engineering, first became dull monthly news with its successes, then the latest global car wreck disaster when, in 1986, Challenger went up in flames.

Shuttle enters into the middle of all this, offering the player the opportunity to get back in touch with some of the excitement of the early days of human space exploration. Without much ado, the manual and software present a complex but manageable interface which provides the player access to virtually all the significant steps involved in the execution of a successful shuttle mission, from VAB rollout to re-entry and landing.

Not a flight simulation per se so much as a full systems simulation, **Shuttle** participates in an entirely new genre of software, which focuses on the realistic replication of the full context within which specialized, highly technical flight performance occurs. Comparisons with **Flight Assignment: Airline Transport Pilot** and **Megafortress** are in order.

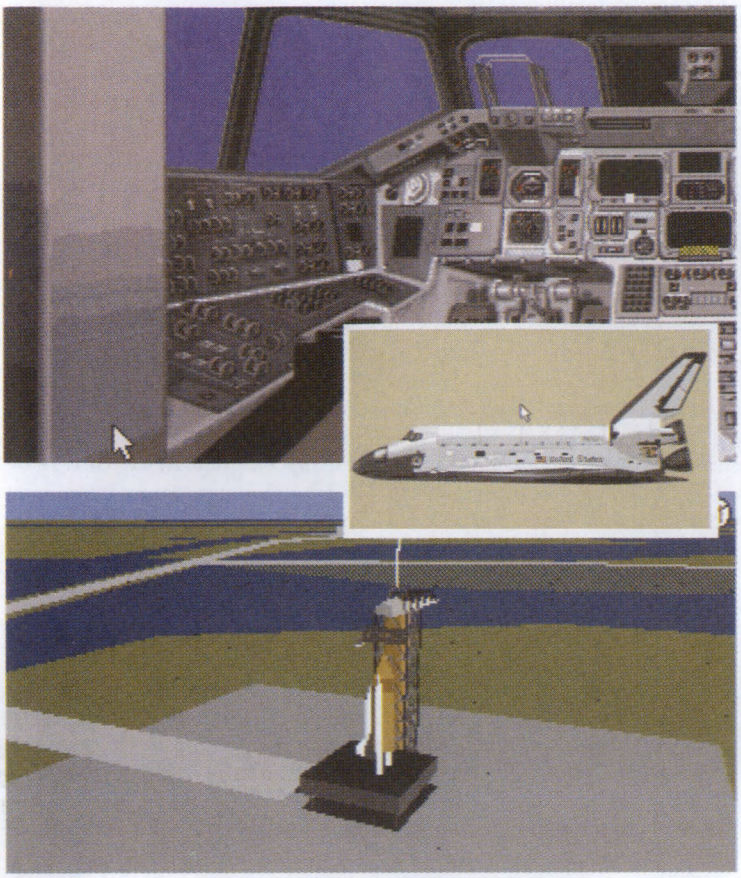
Like **FA:ATP**, **Shuttle** walks the player through management of all the systems involved in the execution of a series of technical missions. Switches and panels from the real space shuttle are painstakingly detailed, and player control over everything from power to the three CRT screens to boiler and auxiliary power unit maintenance is on offer. Flight procedures are followed in a strict, checklist order, and like **FA:ATP**, omission of any steps along the way either reduces or eliminates the ability to complete a flight successfully.

Such procedural representation could all be simply presented as a kind of adventure game, with various text or number options to choose from at various points along the way; in fact, early attempts to simulate things like LEM did just that.

Shuttle takes those procedures, however, and gives them a fully realistic graphic and sonic treatment. All necessary instrument panels and instrumentation are modeled in painstaking detail inside the shuttle's cabin, and performance of the craft in flight is just as painstakingly represented in advanced 3D solid-fill animation from without.

The panels are all done in bit-mapped graphics. Controls are easy to read, though so numerous that first encounter with them is likely to be overwhelming. No fault can be laid at Vector Graphix's door for any problems with the logic of control layout, as it's a direct reflection of the way things are organized on the actual shuttle.

The system used to represent the relations between screens is brilliant. A shifted function-key command puts the player in overview of the entire cockpit, which can then be scrolled around using the mouse for point-and-click operations. Pointing to dif-



ferent panels and clicking on them brings the player into closer view, where the instruments and controls now seen are functional. Certain items, like the CRT screens, can then be clicked on again to provide a full-screen representation of items like trajectory tracking during lift-off, computer systems status, and fully electronic TACAN-based approach control. At this point, the computer screen in essence *becomes* the on-board CRT, thus providing a truly overwhelming 'you are there' sensation (particularly in a dimly lit room late at night with the stubble growing quietly).

Under pressure

Along with a massive representation of the space shuttle's instrumentation, the software also emulates control of a number of related systems. There is, for instance, the MMU unit, a pressurized space-suit used for extra-vehicular activities. A KU antenna can be deployed and stowed. Canada's RMS (remote manipulator system) mechanical arm is available for use during missions in which payloads must be handled. The buttons used to program the on-board computers function just like the real thing. And, finally, the joystick controls the RHCs for things like manual flight re-entry. **Shuttle** does an excellent job of providing a distinct flight model for the space shuttle, by the way; it performs like no other software plane I've encountered, in ways that add immensely to the believability of the overall situation.

This extensive in-craft realism is complemented with a thoroughly conceived and completely effective solid-fill graphic representation of the shuttle and its environs from a series of selectable outside views. While none of these graphics is going to compete with the likes of those in **F-117A** or **Jetfighter II**, they are nevertheless smooth and fluid. Specific objects, like the shuttle itself, the launch platform and the payload, are animated with a great number of solid surfaces, and look quite detailed. The graphics for the billowing smoke during lift-off are probably the best representation of billowing smoke in solid-fill design currently on the market.

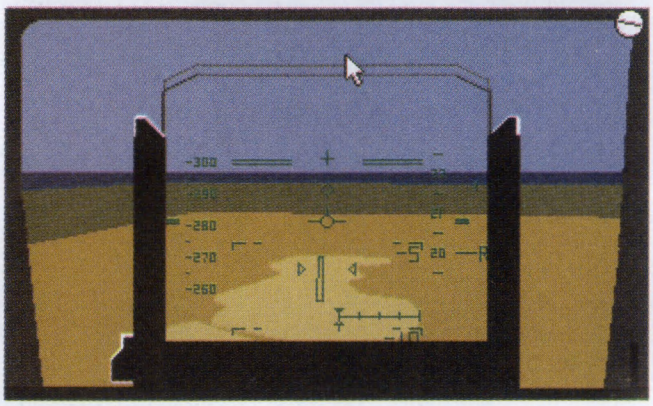
As with its previous work, Vector Graphix seems to have gone for relatively sparse population of the surrounding terrain for the sake of greater detail in the central animated object, which works appropriately for **Shuttle**. The only criticism I have is that the views of Earth from outer space are at best elementary; this is one place where more detailing in the solid-fill design (at the expense of slower machines) would be preferable. Also, nothing is included by way of representing the heating-up of both the atmosphere and the shuttle's surface tiles during re-entry, another missed opportunity for some graphic excitement.

Mouse must

Control of the simulation occurs primarily via the mouse. As with **Megafortress**, the mouse saves the player from learning pages' worth of control-key and function-key commands, and makes it possible to move quickly around the simulation. For those who plan to spend lots of time with the thing and learn it all by heart, there are control-key and function-key equivalents for almost every possible mouse-click operation. Holding down both mouse buttons simultaneously also brings up a standard menu bar at the top of the screen, which allows alternate selection of various views, options, controls and features from text descriptions presented in menu format. In other words, no matter what kind of graphic interface the player is comfortable with, it is supported in **Shuttle** (well, there's no light-pen option... yet).

Along with all this incredible detail, **Shuttle** also provides a number of quite useful management utilities. The player can choose to start missions either with the VAB rollout, from the launch platform, or already up in orbit. Graphics detail is configurable from within the game, avoiding the potential foibles of running through re-installation processes.

A player log can be saved to disk either automatically or manually, and logs can be saved under different names for different players (so, for instance, your whole science class could participate in a contest to see who learns the shuttle the fastest, with each player able to keep their own log of progress). On-screen info for various major shuttle systems is accessible from menus, to provide useful background during play without a search for the manual. And, most importantly, the player can se-



lect various levels of help, with full-on auto providing help down to the level of automatically switching the screen to the necessary panels and highlighting the controls in need of access (and in the proper sequence, even!) to complete a procedure (wish my doctor had such a help system).

Two other significant aids are included in the interface design of **Shuttle**. One is time advance, the other time skip. Time advance allows the player to select a pre-determined amount of time which, with the press of the T key on the keyboard, will be passed through in accelerated fashion. So, for instance, if the player knows that VAB rollout will take seven hours, time advance can be set to eight hours and 30 minutes, and the simulation will run more quickly through those seven hours and pause at the first point where player input is needed. This makes **Shuttle** move along much more precipitously, and helps avoid all the long waits that would occur in real time.

I would imagine the rationale behind not building such time-advancing directly into the design is that, for those who'd want to follow along a real mission minute-by-minute, such automatic abbreviation would be a hindrance. This way, the player can run the simulation in parallel with real-time events if so desired (set the shuttle for VAB rollout, head off to school, then tell your friends you need to get home in time for launch procedures if they suggest an after-school game of football).

Time skip is a more direct utility, which provides the player with an option to skip directly to a particular point in any mission. This option only allows the player to skip forward once a mission has started, and once selected, the software will automatically run the various steps in between the present moment and the moment to skip to, without any player intervention. So, for instance, if heating up those boilers has started to seem like doing the dishes prior to launch, time skip makes it possible to leave the chores to the computer and focus on the parts of missions the player is really interested in.

The two manuals that come with **Shuttle** are a mixed bag; the shortest manual purports to provide an introduction to primary procedure for a number of the initial missions, but describes a series of events rather than walking the player through specific command and control sequences. It is thus more of an impressionistic overview of what's likely to happen.

The main manual, 144 pages in length, reads like the janitor's late-night plagiarism of the top-secret space shuttle operations manuals he stole from NASA Mission Control. There seems to be no rhyme nor reason to the sequence of presentation or the provision of details, and even worse, there is no framing of the technical information provided in a way that integrates effectively with use of the simulation.

This leaves the player either hunting desperately through the whole thing during the course of a mission trying to figure out why the orbital DAP should be set to manual right after OMS-1 burn, or just following full-on auto help and Mission Control's instructions (provided by an on-screen teletype printer accessible with the F7 function key) without any clear idea of why or wherefore.

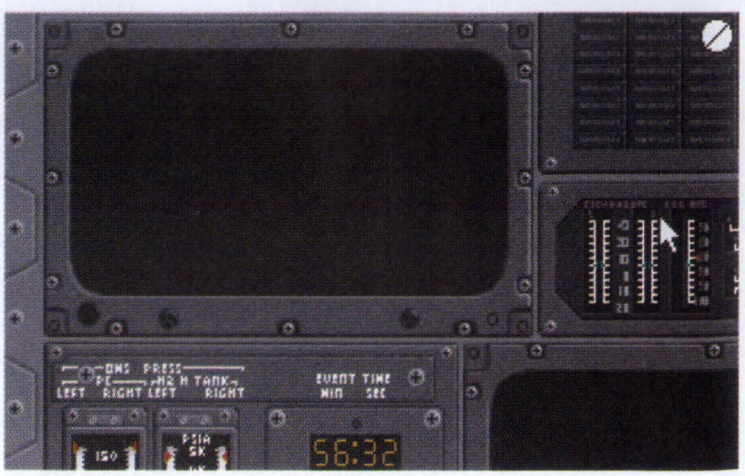
Playing blindly through a few missions and then going back to investigate the main manual to see if a few recognizable instruments, tools, systems or procedures can be found is recommended as the only long-term way to deal with this problem.

A nice poster detailing all the functional cockpit panels is also included along with **Shuttle**, but its purpose remains a mystery to me. I hung it up behind my computer to scare my wife into thinking she might never see me again (she tore it down).

Shuttle is a massive simulation in many ways, and requires 1.4Mb of hard disk space and at least 530k of the base 640k of system RAM (no extended or expanded RAM is made use of with the current version, and it doesn't seem to need it). It is eminently playable even on 12MHz CGA-based systems, though the outside views will have to be turned down to minimum detail to run smoothly.

The mouse interface is smooth, and the Roland and Sound Blaster sound effects add immeasurably to the excitement of the thing. There is plenty on offer here if the player is looking for a deep, realistic simulation of cutting-edge technology. Late nights can be spent with Mission Control once again, this time without commercials.

Perhaps the best thing that can be said about **Shuttle** is that it makes me eager to find out when the next real space shuttle mission is going to take place. Or, barring that, when the first Mission Disk is going to be released by Virgin. ❑



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Falcon 3.0

Confessions of a beta-tester

By Steven Wartofsky

Falcon 3.0 represents a radical evolution in air combat software design, and will be the standard for years to come. The flight modelling is closer to real-world specifications than any other PC-based F-16 simulator out there, particularly when the high-fidelity flight model is accessed – and for which a maths co-processor is required.

The package goes one better that **F-117A** and **Secret Weapons of the Luftwaffe** by including three fully developed theatres of operation – Kuwait, Panama and Israel – all of which are closely mapped out based on actual terrain elevations, road, city and waterways locations, and all of which make use of a dynamic mission generator, which provides variance in missions based on an evolving scenario.

Although the mission generator sounds in theory like the one used by Microprose, there is a significant difference: all enemy ground and air units react to the player's actions.

A campaign involves accumulating results for both sides from mission to mission, so that things like weather, supply, weak points in the front line between opposing forces, and quality of units sent up against the player can change quite fluidly from mission to mission. For instance, if the player has to protect incoming resupply on a cloudy day with very low cover, and fails to do so in the mission for the day when resupply takes place, shortages in munitions, planes and fuel may start to take place down the line.

In essence there are two sub-game systems during the simulation: one handles strategic operations based on the results of each mission at its conclusion and the other handles troop movements and responses during the mission.

All this provides a 'virtual battlefield' which is freed of the redundancies inherent in any design where the strategic and tactical elements are hard-wired. In other words, **Falcon 3.0** provides an advanced, dynamic wargame run entirely by the computer as a background context within which the player must execute missions. No two playings of the campaign in any of the three included theatres will follow parallel lines of tactics and strategy.

As with **Flight of the Intruder**, Spectrum Holobyte has designed missions so they are more than the projection of the player's lone F-16 against an array of computer-generated opponents. Not only can the player include up to eight F-16s in a single flight group as part of the preparation for a mission, but he can divide those eight F-16s up into smaller flight groups with different objectives. It therefore becomes possible to set up one flight with a ground target mission and provide another group for air cover during the bombing run.

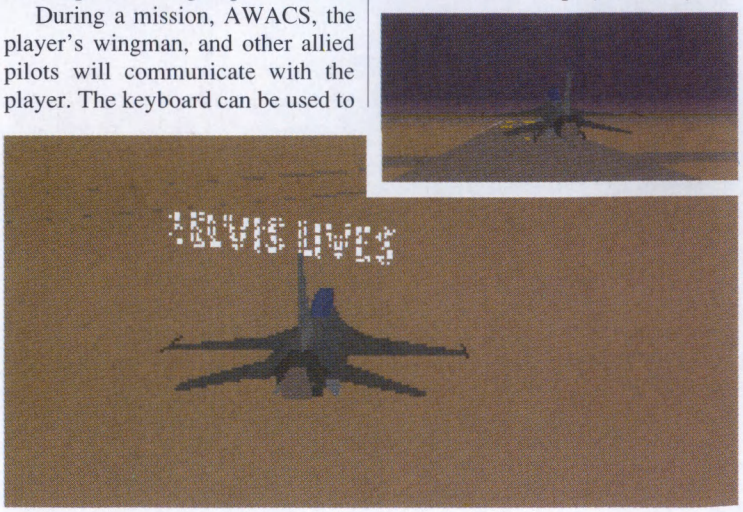
Graphic aid

Unlike **Flight of the Intruder**, however, the completely graphic interface makes flight group configuration an easy task. As a group is set up, each F-16 can be loaded out with a customized combination of pilot, munitions and elements such as ECM pod and extra fuel. The group's objectives, waypoints, and actions at each waypoint can be programmed into the simulation with only a few mouse clicks. One of the only weaknesses is that it is not possible to specify any kind of default loadout for the planes in a group.

During a mission, AWACS, the player's wingman, and other allied pilots will communicate with the player. The keyboard can be used to check with AWACS the heading to the next waypoint, as well as to communicate with other members of the flight group. All communications appear quickly in a line at the top of the screen, and anyone with Sound Blaster sound cards will hear many of those communications played via digitized speech samples. The voice samples are all quite realistic-sounding and add immensely to the vividness of the mission.

Sound effects also include Sidewinder missile lock-on howl, as well as warning signals when enemy radars have caught the player's F-16 and missiles are launched. The voice message system provides a number of warnings should the player do anything stupid like fly too steeply towards the ground, run out of fuel, or lower flaps or gear above rated speeds.

The F-16 simulated in **Falcon 3.0** includes options beyond those normally found in software representations of the plane. For instance, the player can select between two different HUDs, depending on whether the preference is for realism or readability, and can choose between three different radar displays. Enemy air-



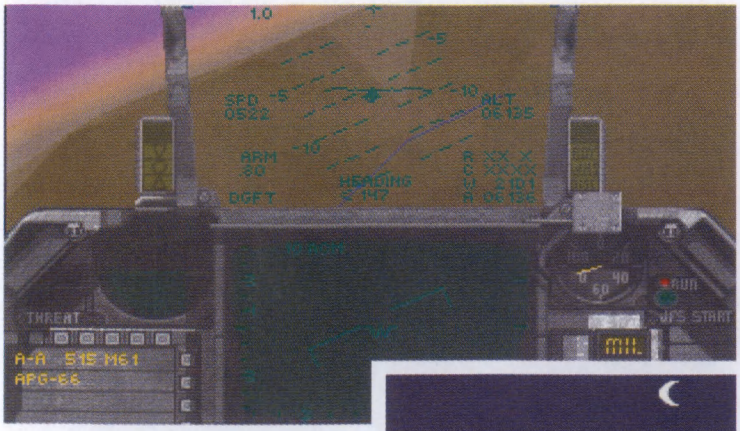
Published by
Spectrum Holobyte, Mirrorsoft (UK)

Systems
IBM PC

PC graphics
VGA

Supports
Sound Blaster, Adlib and Roland sound boards; keyboard, joystick and mouse; maths co-processor chip

Notes
Requires minimum of a 386SX running at 16MHz or faster, and 614k base system RAM. DOS 3.0 or DOS 5.0 required. Multi-player option over a Novell network supported, plus two-player modem or serial link. Falcon 3.0 will link with A10 (to be released later this year) in the first of the Electronic Battlefield series.



craft and SAM logic levels can be set as well to adjust the difficulty of play.

The extensive configurability of **Falcon 3.0** ensures that it will be playable by a very wide audience. The software is designed to allow the player to choose as much or as little realism as is wanted, and makes it possible to turn **Falcon 3.0** into either a relatively easy boot-and-shoot arcade game, or a tremendously difficult, realistic simulation nearly capable of being useful for real-world professional training.

Air combat school and the red flag option provide even more reassurance for the casual (or even advanced) air combat fan. The red flag system includes a series of eight lessons set up for the player to use while reading the manual. Lessons cover everything from take-off and landing to control of specific weapons systems, and also provide training in understanding the HUD displays and view manipulation options. The player is thus guided carefully through all the various aspects of in-flight performance, thus maximizing use of all the included features of **Falcon 3.0**, and minimizing frustration.

Using the red flag system, the player can put together and save any kind of mission. Red flag covers extensive terrain around Nellis Air Force Base in Nevada, and features such things as The Grand Canyon and Las Vegas, as well as the same incredibly detailed 3D representation of actual geography present in all the theatres. The screens give the player the option of putting together as many friendly and enemy ground and air units as the simulation can handle (quite a few), and make it simple to set up waypoints and objectives for all units selected, via simple mouse click-and-drag commands.

The overhead map display present both in red flag and in the campaign theatres provides zoom from 1x to 999x, so that the player can both scout out terrain and targets from an overhead view, and zoom right down to a level where the scenery can be viewed as it might look when flying over it during the mission.

Falcon 3.0 also includes an instant action mode in which all the player has to do is click on a screen in the start-up war room and he's immediately deposited in an F-16 with unlimited arms and chaff, and plenty of opponents to fricassee.

Friend or foe?

It should be made clear that the player's F-16s and the computer's MiGs or SUs aren't the only aircraft that are going to show up in the sky. **Falcon 3.0** features a host of both friendly and enemy aircraft, many of which are busy in the nearby environs of any mission in the campaign. A identify friend or foe (IFF) button is included to give the player a chance to make sure he's not about to shoot down a plane from his own side, and part of the thrill of the simulation includes the uncertainty of knowing whether unidentified aircraft are allies or enemies.

Finally, the manual – all 350+ pages of it – is a model of useful, thorough, and logical documentation, and includes a vast amount of technical information about the weapons, ground units and aircraft present in the simulation. The three included theatres are well-conceived and explained, and the introduction is organized in such a way that the player is guided from the simplest to the most complex layers of understanding the software with nary a hitch.

All pertinent sections are organized carefully into sections with tables of contents, and all relevant information is indexed thoroughly as well. The manual makes it easy to find whatever kind of information the player may need at the moment, without going through the usual frustrating search all too common in the documentation included with complex software. Finally, some professional explanations of aerodynamics and g-forces, as well as an extensive introduction to the discipline of air combat manoeuvres, are included.

Falcon 3.0 simply outclasses every other air combat simulation on the market. It's arguably prettier than **Jetfighter II** (especially if ground terrain is compared), and sonically more impressive than any of Microprose's stuff run through a Roland. The digitized speech samples simply must be heard, and seem much more relevant to the in-simulation experience than their equivalents in **Wing Commander II**.

Is everything perfect in simulation land now? Is this thing the perfect simulator? Well, not quite: there are currently some real bugs in the installation process, as well as during game play, that will no doubt be ironed out in time. Since **Falcon 3.0** pushes RAM limits, getting the software and the computer system integrated to the point where there are no drop-outs in sound or glitches in other elements of the simulation can prove to be a tricky business. There is a modem option included, which allows direct connect, connect over the telephone lines, and even connection over a local area network, but it is reportedly only partly functional with this release. Finally, the program is just unavoidably complex, and likely to prove daunting to users new to this kind of software.

However, **Falcon 3.0** is really the first instalment in Spectrum Holobyte's long-dreamed-of electronic battlefield series, and with time, these kinds of problems should be brought under control. With **Falcon 3.0** a great leap forward has truly taken place in software simulation technology. ❑

Hints

Installation

If the program freezes or presents an error message, delete all the Falcon 3.0 files in the newly created directory on the hard disk and reinstall the program.

Keyboard lockout

If it is impossible to use the keyboard to select buttons in the interface or for cockpit functions while flying around, the line BREAK=ON may need to be added to CONFIG.SYS. Add the line to the end of the file using a text editor, restart the computer and run Falcon 3.0 again. If this fails to work, unplug the keyboard from the computer and then plug it back in again.

Mouse drivers

If a mouse driver is incompatible, ensure that you have the latest version of the driver. The Genius mouse driver exhibits problems, but is corrected in version 9.06.

Sound glitches

Fast machines with the latest sound cards may experience some sound problems (sounds turning off, certain effects not played, and so on). These problems should be fixed in a new version.

If digitized radio messages are not playing, ensure there is 480k of expanded memory for these sounds. This means the computer needs at least 2Mb of RAM to play digitized radio messages. Other sounds can be heard without this expanded memory requirement.

COMMANDER CRUNCH REPORTS FROM THE HANGAR

Commander Crunch (crazy name, crazy guy) discovers the secrets of SWOTL, catches a Shuttle and goes flying with a Falcon

Secret Weapons of the Luftwaffe: more missions to come

Just when I was ready to settle into the comforts of familiar airspace with **Secret Weapons of the Luftwaffe**, along comes the first of what promises to be a series of mission disks for the simulation. Entitled **P-38 Lightning Tour of Duty**, the package includes two versions of the P-38 and an update of the original system to version 2.0.

What's included in the update? Apparently the logic used to scatter enemy aircraft across the skies tended to bunch them instead; this has been fixed. Other similar refinements have no doubt been made. Lucasfilm has for some reason decided to be quite mysterious about all this; there's no indication in the documentation included with the package that an update will occur upon installation of the mission disks, and no information is given as to what changes have occurred.

The P-38 was an interesting supercharged, twin-engined plane, with the engines mounted on twin 'booms' either side of the cockpit and nose. It combined the usual Brownings with a cannon (limited number of rounds), and in terms of performance characteristics was the American response to planes like the German BF-109. Not as fast nor as manoeuvrable as the P-51 Mustang, the P-38 nevertheless served its purpose as a bomber escort, and later on, as a reconnaissance plane.

As with all the other planes in **Secret Weapons**, there are a good number of historical and custom missions, and the plane can be flown in tour of duty mode or used with the mission builder.

There are two versions of the P-38 included in the mission disk, representative of the changes that took place in the plane's design during the period covered by the simulation. The 15-page manual does a great job of packing lots of interesting detail into a little space, and provides both a historical background for the plane's design and some colourful and useful comments on appropriate combat tactics for this machine.

The P-38 suffers in particular from something called compressibility (sounds more like what's happening to my vertebrae), which means that it's hard to pull it out of a steep dive. On the other hand, it climbs like an eager witch on a broomstick once enough forward energy has been built up. All of this adds up to a substantial addition to an already extensive design, and is worth the extra investment even if exploration of the basic simulation itself has just begun.

Mission disk frenzy has hit Three-Sixty as well (this is always a good sign, indicating that the company's selling enough copies to warrant further investment in a product), with their upcoming set of new scenarios for **Megafortress**.

Probably available as you read this, the mission disk will include almost twice as many new missions as were already present in the original release, in two related theatres of operation, Libya and Iran. These missions are tough, and recommended only for players already thoroughly in control of **Megafortress**. The only potential weakness of this wonderful, strategic system simulation – its lack of a wide number of missions – has thus been addressed. We can only hope that, with something as flexible as this kind of simulation technology, the system will continue to be re-used and expanded upon with more missions, more sound, more graphics... more, more, more!

Perhaps **Megafortress** looks to some readers like the biggest collection of panels and buttons ever to show in a single piece of software. If that's the case, they haven't seen Virgin's latest contender in the flight simulation arena, **Shuttle**. This design wins the 'number of buttons to push for your money' contest hands down, and is a formidable learning project (see review, page 54). Let me offer a helping mechanical arm for anyone out there trapped in their MMU unit.

Time warp

The two most important features of **Shuttle** provide the ability to warp time and space to the player's liking; these are the time skip and time advance functions. Anyone who sat through the glory days of space launch presentations on television knows that one of the most important skills astronauts must have to succeed is the ability to sit through long periods of

time during which nothing really exciting happens.

Shuttle provides a brilliant solution to waitophobia with the above-mentioned functions. Time skip can be used to automate certain portions of flight, manoeuvres and deployment procedure, and time advance can move the player right along from one procedure to the next without having to die slowly during the in between.

The first encounter with **Shuttle** is likely to cause panic, confusion, horror, consternation, and real threat to the longevity of nearby computer hardware. Avoid all this by following this simple set of steps: first, make sure time advance is set to 6 hours, 30 minutes. Then, make sure maximum help is turned on. Now, pay attention only to the following keys on the PC: F1, Shift-F1, T, and F7. Yep, that's all you need to fly the shuttle! Well, at least if you have a mouse.

T for two

Hit T to move the simulation forward to the next important moment in time, when the simulation calls on the player to perform some action. If the shuttle starts out needing to be rolled out to the launch-pad, a good long wait, even with use of the T key, is in the offing. Hit T, wait until the circle in the upper right hand corner of the screen goes back to the revolving line, then hit T again, and repeat until a brown M appears in the circle. This means you have mail from Mission Control (slightly perfumed, no wax seal).

Hit F7 to read your mail, then F1 to go back to the last control panel you accessed. Of course, because you haven't accessed any, the key won't do anything at first. Hit Shift-F1 to see an overview of the cockpit, and select any panel with the mouse to get a close-up view of some of those lovely switches. With full help on, Mission Control will outline all switches that need switching in red, and bring your attention automatically to all the right panels. Hit F7 to read about what you're doing, F1 to go back to the panel with the switch that needs pushing, and so on a few times until you get comfortable with how this works.

Now, just follow the procedures outlined in the mail from Mission Control, using the T key after stopping all the red boxes around switches from flashing to get to the next nodal point in the operation. You should be able to get through most of the first few missions this way without paying any attention at all.

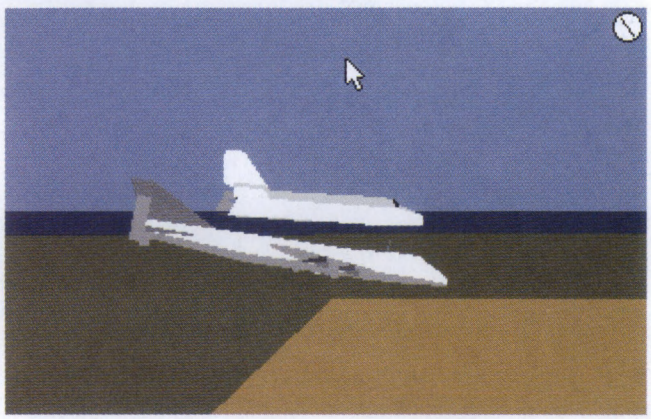
Is **Shuttle** part of the brave new world of flight simulation I've been ranting on about for a few columns now? Or rather, if it is, then is this what we want? I certainly find the design deeply entertaining, but then again I'm voracious when it comes to learning new things. I'm sure there's a contingent of gamers out there who are more inclined to the tried and true (otherwise how would Nintendo and Sega have made it so big?), and who find having to learn a whole new set of commands, options, buttons, and so on a chore rather than an opportunity. Let me just warn this contingent that if you like playing with Hewlett Packard calculators, fine, get this game; if not, get a set of rudder pedals to hook up to your system and wait patiently for **Flight Simulator 5.0**.

Or – wait! – it couldn't be! Yup, **Falcon 3.0** has finally leaped out of the development garage and onto the local software shelves, and those of us who've been in on the beta-testing process are currently staring in profound amusement at our screens, whispering to ourselves, 'gee, it actually works...' As I write this (early December 1991) it's T-plus two days and counting since people started actually buying the thing, and there have been some oddities (mostly having to do with installation) but on the whole the software's running fine.

There's been enough hype in the industry to last well into the 22nd century, but let me just add my share anyways by suggesting that **Falcon 3.0** has set a new standard for air combat simulation that will take other companies literally years to compete with. How refreshing to see something make such a leap, at a time when software evolution has slowed to the point where neat graphics and sound added onto a five-year-old game design is considered state of the art.

Now that Spectrum Holobyte has proven this particular game 'engine' will run, expect less time between releases from them. On offer in the (hopefully) near future will be both A-10 Warthog and AH-64 Apache simulations, both of which, with any luck, will be as thoroughly realistic as **Falcon 3.0**. Don't even ask, when, though. I hear the SpecHolo team is currently undergoing group counselling for work-related stress and exhaustion. A big congratulations to all those involved.

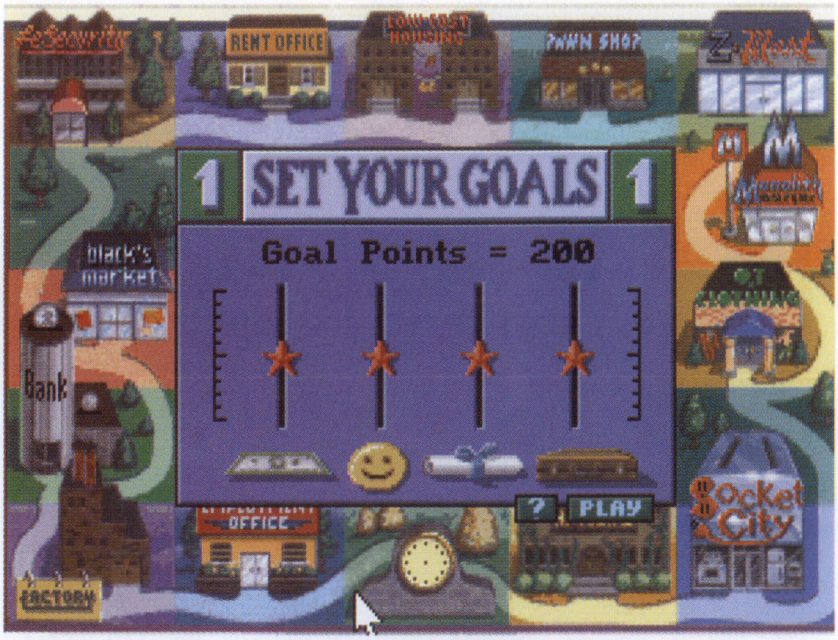
With any luck we'll be getting into some in-depth discussion of everything that can be done with **Falcon 3.0** later on, but one of the most reassuring things worth mentioning at the start is that, for all the incredible innovation here, the basic keyboard command set from the original **Falcon** (Amiga, ST or AT versions) is still more or less present. So, while there's plenty on offer that goes beyond the basics, it won't take a complete re-education to get to it. This is one of the *strengths* of MicroProse's **F117A**, too – loyal veterans of the company's games can dig right in.



Learn to skip: Shuttle can jump through time

How many flight simulations are there now – 30? 60? The field is quite crowded, but there's still a gaping hole: war in the Pacific using planes and ships. **Harpoon** has proven how absolutely lethal to the average gamer's free time such a combination can be, and it doesn't require any squinting into a crystal ball to see that the next big move in air combat simulation is going to be to the briny deep separating California from Japan, circa 1940-something.

I only hope exploration of this possibility will include further integrations of flight simulation technology into complex strategic possibilities, instead of resting with what's already been done. Once upon a time thinking that the likes of a **Harpoon** could be mixed successfully with something like **Red Baron** would have left me in despair. Lately, with **Megafortress, Secret Weapons of the Luftwaffe, Gunship 2000** and now **Falcon 3.0**, I'm beginning to think otherwise. All clear for takeoff! Watch for pigeons at the end of the runway. ❑



Jones in the Fast Lane: upwardly mobile on CD-ROM

CD ROMP

Marcus L Rowland looks at what happens when PC meets CD

I'm a storage junkie. I love the idea of hundreds of megabytes throbbing with useful software and data. If I could afford it, I'd buy myself a WORM drive and be the first kid on my block with gigabyte floppies; unfortunately I've had to settle for something a little less useful: CD-ROM, to be precise.

CD-ROMs are read-only disks that look like audio compact discs. Most use a format that gives a maximum capacity of 545Mb, but with high data integrity. There is also a faster but slightly less reliable 635Mb format for really big applications. By a miracle, almost unique in the world of computers, these two formats are completely standardized, though the contents of a disk are usually usable on only one type of computer. Most recent drives can also play music CDs under computer control, and many disks mix data and sound.

Kitted out

There are CD kits for Macintosh, PCs, Amigas, and Unix work-stations. Atari makes an ST version, but as far as I know it's only available in Germany, and all the applications are German business software.

PC kits usually consist of the drive itself, a controller card, cables, disk holders (called caddies) if the drive needs them, and device driver software. Some also include the Microsoft multi-media extensions for **Windows 3.0**, which may eventually be useful if someone gets round to writing software that needs them. The new Sound Blaster Pro has everything needed for multi-media on a single card, and comes with this software.

Most drives use SCSI controllers. All SCSI devices are supposed to be compatible, but in practice there can be horrendous problems if there are two or more SCSI boards in a single PC, and their cables often don't match. Some hard disks and scanners use SCSI controllers, so watch out! There are also drives with custom serial connections, and at least one that plugs into a standard parallel printer port and can be used with portable computers. Data transfer rates are fixed by the CD data formats, at 153k or 176k a second, and can't be changed without introducing compatibility problems, so a fast serial port can cope.

Internal drives mount in 5.25in half-height drive bays inside the PC; external drives are boxed with their own power supplies and tend to be much more expensive.

Bundled discs

One exception is the Philips CM-50, examined here. Several companies now bundle drive kits with two or three CDs for £250 to £399 ($400–500). This can be a bargain, provided the software is useful. It's usually much more expensive to buy drives and software separately. Be warned: there are some fairly shoddy deals around. One company advertises a bundle including 25 CDs, but many of them are audio disks. Others sell drives that can't cope with audio or the 635Mb data format.

To sum up, all CD-ROM drives have slow access times and data transfer speeds, but a huge capacity, and most have the ability to play high-quality sound. That makes them ideal for multi-media work, espe-

cially where the main need is to find one chunk of data from a huge pool of information. Most of the published CD-ROMs are encyclopedias or databases of one sort or another, and cost as much as their printed equivalents. Games could also benefit from the capacity of CD-ROM, but there are likely to be a few problems.

Device drivers

The PC standard and MS-DOS were designed a long time before CD-ROMs. Both have trouble dealing with such large disks. The usual way around the problem is to use two device drivers. One is specific to the drive, and tells the PC about the interface. The other is MSCDEX, the Microsoft CD extensions, which tell Dos how to use a CD drive. They take up 48k, a little less if one or both can be swapped to expanded memory.

Wing Commander 2, including the speech add-on, comes to about 20Mb in expanded format, and is distributed on 19 720k disks. Installation takes more than an hour, with 20 minutes of disk swapping then 45 minutes of file expansion. The floppies must cost Origin at least £4. If it were supplied as a CD-ROM (manufacturing cost about £1.50) the user could pop it into the drive and let it load unsupervised. There would be room for several versions of the program, with graphics files, so that none of the delays caused by file conversion and expansion would occur.

CD options: Philip's player plus typical package

At the moment games CDs for PCs are very much in their infancy. They probably have a big future, and the current drop in drive prices should help considerably.

All that remains is for manufacturers to get their act together and take the risk of putting more games into this format, with graphics and music to take real advantage of CD's vast capacity. ❑

Philips CM-50

This small external drive now sells at £229–300 ($350–450), usually bundled with several disks. Generally the disks come from Software Toolworks, which seems to be making a big effort to popularize CD-ROM.

A typical package consists of the drive and cable, an external speaker cable, a PC controller card, installation software and drivers, and three disks (**World Atlas II**, **Reference Library**, and **Software Toolworks** games pack) for £329.99 including VAT and delivery. Other dealers are offering the **Software Toolworks Encyclopedia** (which is actually the huge **Grolier Encyclopedia** sold under licence) as part of a similar package.

Access time averages 0.8 seconds, a bit on the slow side, with the usual data transfer rates. There's little more to say about performance, since it's mostly fixed by the nature of the disk, not the drive.

The casing is plastic over a metal base, and feels fairly solid; even so, I'm trying to avoid letting the younger members of my family change disks when they're using it for their homework. The only controls on the drive are an on-off switch, door latch, and output volume slider. All other functions are run by software. The interface is serial, an extremely small (half height and third length) 8-bit card which should fit any PC with expansion slots. Power for the drive is taken from the PC, through the same cable that carries data. So far I've not noticed this causing any reliability problems. The only other port is a miniature headphone jack socket.

Disks are inserted by hand, not in caddies; this is awkward, but easy enough if I can keep my greasy fingers off the front of the disk. The drive can play music CDs under software control, but switches the music off if the computer reboots. It doesn't have manual controls, which is a nuisance if I fancy a quick burst of ELO but don't want to install the device drivers.

I didn't really buy the drive for games; my main need was a good encyclopedia, so I got it with the **Software Toolworks Encyclopedia**, the **Complete Shakespeare** and **Complete Sherlock Holmes** libraries, and **Audobon's Birds of America**. All of these disks work best with 640x480 256-colour VGA graphics, which needs a 512k card. Pictures in this format load in about eight seconds, which is fast enough for reference purposes. All work perfectly, with no compatibility problems, which is what CD is all about. I'm looking forward to the increased availability of CD games, if only to avoid overloading my hard disk, but won't count it a total loss if I can't use them.

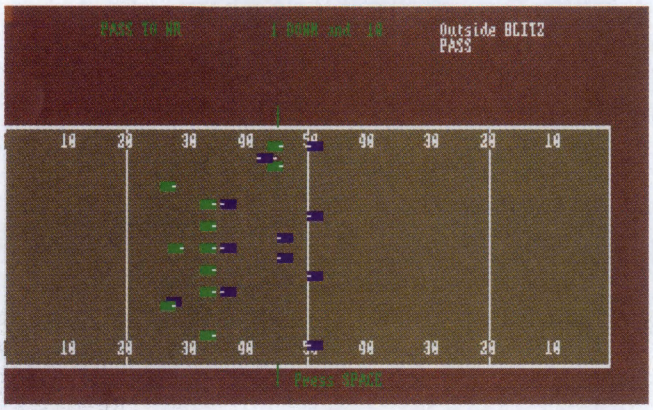
After several months I've found no fault with this drive. It works well, and the only difficulty I've encountered is that I occasionally forget to switch it on before re-booting with the CD device drivers loaded. If that happens the PC locks up until I switch on.

When I bought the CM-50 it was the cheapest external drive around, by at least £100. Today the choice isn't so clear-cut, and I might be tempted to spend a little more on a drive that uses caddies and a SCSI interface.

American Football Coach

London calling

By George Campbell



Designed by
Eddie Hayes

Published by
Composer Software

Systems
1Mb Amiga

Notes
Price £9.75 from Composer Software, Blenheim Close, The Narth, Nr Monmouth, Gwent, NP5 4QN, UK (sterling cheques, IMOs only).

American Football Coach isn't just any old football game for the Amiga: it's been created by a *Strategy Plus* reader cum one man software house and so is thus worthy of attention for this reason alone. Furthermore, it deals with the World American Football League and not the NFL, making an interesting change from most of the gridiron games on the market.

There are 10 teams in the WAFL; Barcelona, Birmingham, Durham, Frankfurt, London, Montreal, New York, Orlando, Sacramento, and San Antonio. Players steer the London Monarchs to fame and fortune (but usually some shameful defeats early on). There is no option to adopt another team, so tough luck if you're a fanatical supporter of the Montreal Machine.

Individual players are not named, but their positions are given a skill rating. There is the quarterback, of course, three wide receivers, a tight end, three running backs, two inside and two outside linebackers, two safeties, two cornerbacks, a kicker and a punter. Special teams, like the offensive and defensive lines, are given a collective rating.

Teams in the first contract year have 120 points shared among the players, hogs, and special teams, with 10 being the maximum. These values are fixed. It's not possible to alter them to suit your own game plan. The total value of a team increases each year, so the fifth year can be a dismal time for London, particularly since the cornerbacks are a real liability.

League play consists of a maximum of 11 games for a team: eight regular games, two play-off games, and the championship itself. **American Football Coach** is designed around league play, with pre- selected opponents for the Monarchs.

Offensive choice

The offensive running game revolves around seven plays using the running backs or quarterback. There are sweeps, blasts, inside runs, sneaks, bootlegs, and the dicey reverse. The passing game has more variety with short, medium or long passes to eligible receivers, and a pitch out to a running back in the backfield. There's no need to specify individual offensive formations and it's not possible to give blocking assignments.

Defence incorporates seven formations, each with a strength and corresponding weakness. For example, 7-1-3 is a goalline defence with seven down linemen, three on pass coverage, and a single gap- plugger. The basic emphasis with each formation is either run or pass, depending on what the artificial intelligence is likely to do.

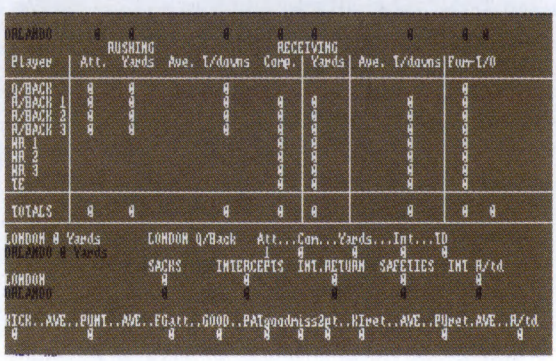
The screen provides information on the down, yards to go, field position, time, score, and relevant options. A comprehensive set of statistics can be obtained at any time during play, including rushing and passing yardage, individual gains and averages, and so on. Decisions are input by single keystrokes making for a very convenient interface. Once play resumes the teams are shown in symbolic form on the football field. It's simple, but effective.

All manner of bad things can happen during play: interceptions, fumbles, incompletions, missed kicks, safeties, sacks, and so on. However, there are no penalties such as offside or interference which can have a drastic effect in certain situations.

I did encounter an anomaly during play, in which London managed to resume play from their -20 yard line – beyond the end zone. This glitch didn't repeat itself even after extensive play so it can be assumed that some peculiar set of circumstances contrived to put London off the field.

User friendly

American Football Coach is a good game, aimed it would seem at players who need a user-friendly introduction to the sport. It's certainly worth a look as the game play is superior to many full-blown simulations. I'll end by saying that it's extremely tough to have a winning season because the AI definitely plays hardball. Are you tough enough? ❑



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WHAT A RAQUET!

Brian Walker sounds out two new conversions

PRO TENNIS TOUR 2

Designed by
Bluebyte

Published by
Ubi Soft

Systems
IBM PC, Amiga, ST

PC graphics
CGA, EGA, 256-colour VGA

Supports
Adlib sound; joystick, keyboard

Notes
The US title will be Jimmy Connors Pro Tennis Tour (Yo! Jimbo)

PGA TOURNAMENT COURSE DISK

Published by
Electronic Arts

Systems
IBM PC; Amiga to follow shortly

Notes
Add-on disk for PGA Tour Golf

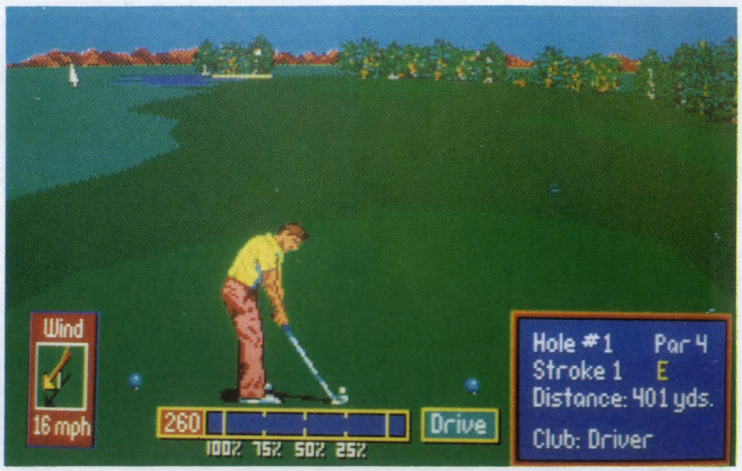
Imagine a Cup Final or Superbowl without a crowd. Or rather imagine either match played in silence save for the sound of boot on leather, or the ring of metal on metal. Ludicrous, right? And yet this is increasingly what is being offered in sporting 'simulations' despite the increasing use of sound cards or the excellent on-board sound chip of the Amiga.

Last month came **TV Sports Boxing** (aka **ABC Wide World of Sports Boxing**) – not so much Raging Bull as Whimpering Lamb. Accolade's **Winter Challenge: The Games** also opted for the sounds of silence.

The sound in the Amiga version of **Pro Tennis Tour 2** was one of that game's many highlights. Shots rang out like a rifle crack at dawn. No such luck in the PC version. The sound via an Adlib board gives the impression that the ball has first been punctured and then soaked in gallon of water before making contact with the racket.

Loss of memory

The Atari 1040 and Amigas with 1Mb of chip RAM allowed extra sounds to be accessed, such as the crowd collectively grunting and also umpire calls. No such luck on the PC – there's not even a cough. It appears the programmers have not heard of EMS or the virtual memory afforded by DOS 5.0. One thing that has been retained is the appalling security check system, which is a nightmare in dark red. Otherwise (if there can be an otherwise) this is an excellent conversion, though the Amiga graphics for once have the edge over 256-colour VGA. The much criticized PC scrolling is entirely absent here as the players move with the grace of Rosewall at his best (well, Lendl, at least). The daft save routine ('Standard One', 'Standard Two') is still in place as is the dodgy English of the manual.



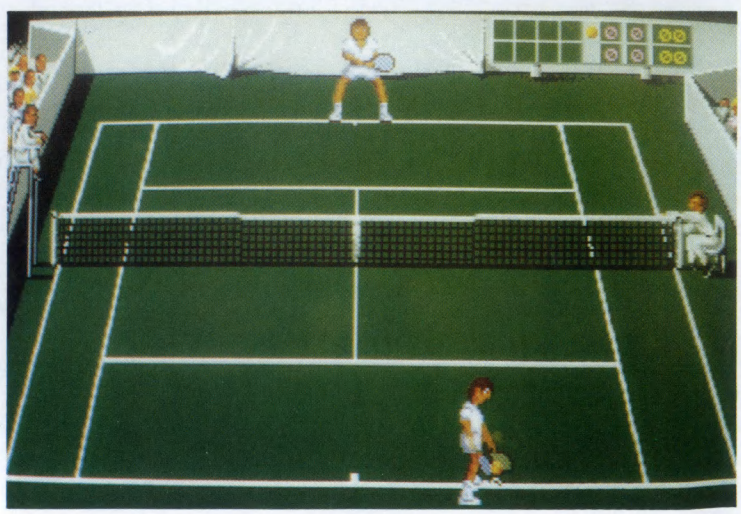
Despite these shortcomings **Pro Tennis Tour 2** is still highly recommended. A full review of the Amiga version appeared in issue 8.

PGA Tour Golf never had any sound to begin with, save for a bleep when the ball entered the hole and a rather smarmy intro tune. The new **Tournament Course Disk** is not about to change that – which is a great pity, Electronic Arts.

What is does change are some of the, shall we say, intermediate scenes, such as the clubhouse and the opening graphics. The greens and the power bar have also had a touch of the paintbrush. Nothing too rad, though, it's still EGA.

The major enhancement comes on the overhead view screen. A crosshair now appears enabling the player to observe the distance from ball to target area.

Before I forget, there are three new courses as well. Players can now compete in the St Jude at Southwind, Tennessee; The Honda Classic at Eagle Trace, Florida; and The Phoenix Open at Scottsdale, Arizona. Despite the limitations of EGA, **PGA** is still one of the best golf simulations around. Now where's that G&T? ❑



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THE SPORTS LOCKER

Joseph McCullough discusses basket cases

With the NBA season more than half over, and baseball season still a month or so away, now is a perfect time to think basketball. Hoops hysteria begins building this month, as the collegians wrap up their conference races and gear up for 'March madness'. Basketball mania should last even longer this year and be more intense, because the summer Olympics begin shortly after the NBA finals.

This time of year is doubly exciting for gamers, because the climax of a sports season often signals the release of exciting simulations of their favourite sports.

In 1991, for example, four baseball simulations and four gridiron games hit the market which defined a new standard for sports-simulation excellence. Each one was painstakingly accurate, using actual statistics from real players, and most took graphics and sound to new heights of realism.

Basketball's skyrocketing popularity, however, begs the question: where are the next-generation basketball games?

Tough sport

I spent the past month searching for answers to this and other questions about computer basketball games. I sent surveys to computer game companies, and interviewed game company executives, for their thoughts on computer basketball. The answers I received all had a common theme: there are so few basketball games on the market because basketball is an extremely difficult sport to capture in an accurate computer simulation.

Kurt Hsu of Electronic Arts compared the relative difficulties of creating an accurate baseball or football game with developing an equally realistic basketball game.

'Baseball is easier to model,' Hsu said, 'because its main action is a simple-to-model confrontation between batter and pitcher; American football has plays which are designed to attack certain areas of defensive weakness.

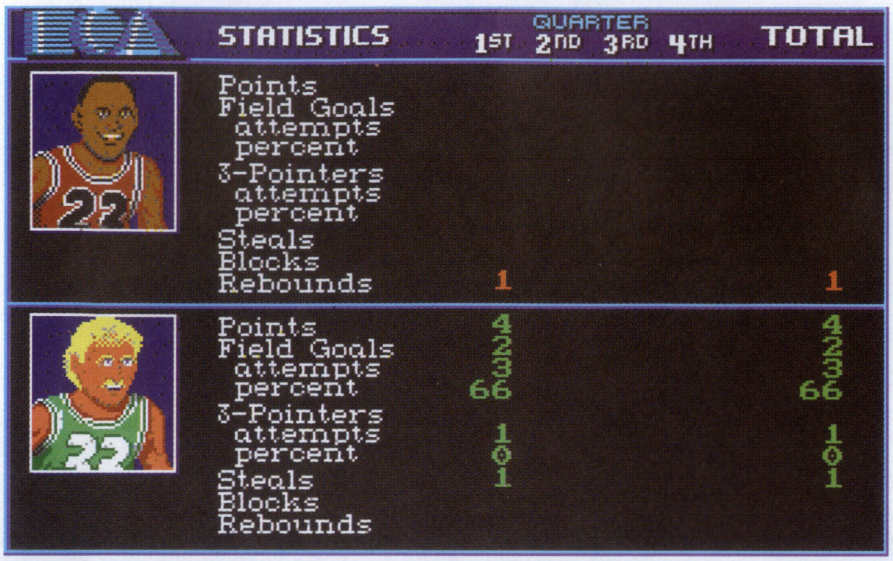
'Basketball is a unique problem because it is the most dynamic of the major sports. The action is constant and not limited to pitches, hits or plays.'

Six shooter

Chris Mate, director of marketing for Bethesda Softworks, echoed Hsu's comments. Mate drew parallels between programming a hockey game and programming a basketball simulation. In hockey, he said, there is only one shot – the slapshot. In basketball, however, there are at least six different shots: the jump shot, bank shot, turn-around, slam dunk, three pointer, and lay-up.

Mate also blamed the lack of state-of-the-art basketball software on hardware limitations. He explained that in a truly great basketball game, all 10 players must have their own independent artificial intelligence.

The processor power required for an accurate simulation of ten independent objects in a computer game is tremendous. Yesterday's entry-level systems – 286-based PCs and 68000-based Amiga and ST computers – did not have the kind of power necessary to handle such a demand at an acceptable speed. Today's 80386 and 68030 machines are potent enough to handle such a task, but there are other factors that have prevented software developers from devoting resources toward marketing a first-rate basketball game.



Jordan vs Bird: no competition?

Above and beyond programming difficulties and hardware bottlenecks, Hsu and Mate mentioned other, less apparent, roadblocks a software company faces when deciding to market a basketball simulation.

Hsu mentioned that a lack of hard data, especially defensive data, has prevented companies from releasing basketball games on the statistical level of an **Earl Weaver Baseball** or **NFL Pro League Football**.

Mate saw another angle. He said that most of the big names in the basketball world have been 'snatched up' by the major players in the industry. Electronic Arts (EA), for example, is under contract with Michael Jordan to produce multiple games for computer and video game systems. EA also captured team licences when it released **Lakers vs Celtics**, making these ever-popular teams off limits from a marketing standpoint.

Official ruling

According to Mate, the perception in the marketplace is that because there are already several 'official' products on the shelves, there is no room for more competition.

Whatever the reasons, the fact remains that few of the major players in the sports simulation arena have plans to develop the next generation basketball game. Spokesmen for Accolade and Electronic Arts, both leaders in the market, told me that their companies have no immediate plans to release a new basketball game, or update their existing titles.

Hope for hoops

Does this mean that the hoops fan has no hope of ever playing a basketball game as technically advanced as today's American football and baseball games? Not necessarily. Although the obstacles are great, one company is ready to come to market with an all-new basketball game based on the 1991 NCAA Tournament, and another is rumoured to be in the preliminary stages of designing statistics-based pro and college basketball simulations.

Dave Holt, the creator of Micro Sports' **NFL Pro League Football**, mentioned during a recent conference that a basketball simulation is the next item on his schedule after he completes his proposed baseball game.

'The ideas are in the works,' said Holt, 'and I think we can put out a good strategy animated basketball game – college and pro.'

At the time of writing, Bethesda Softworks and Mirage Graphics are putting the finishing touches on **Road to the Final Four**, a college basketball simulation based on the 1991 NCAA Tournament.

Eddie Dombrower, designer of **Earl Weaver Baseball II**, is involved with the project.

Dombrower stated that **Road to the Final Four**, which has been in development for three years, will include 'lots of historical... stats for ten man rosters.' It will also feature an editor that lets the player save starting line-ups, create custom play books, edit players, and set the game's ground rules.

The game will come with all 64 teams from last year's tournament, and according to Mate, conference disks will be available shortly after the game is released.

Final Four will resemble the latest baseball releases, in that the player can choose to coach only, play and coach, or have the computer handle all the game play duties. Look for a full review in this magazine once the game hits the shelves.

Avid basketball fans can look forward to at least one new hoops game this year, two if Dave Holt's plans become reality.

After the flood

Compared with last year's flood of football and baseball simulations, this is only a trickle. When all factors of creating a successful basketball game are considered, however, fans should be grateful for the release of any top-notch basketball game. As new stars rise in the NBA, and technology improves, the frequency of basketball game releases should increase.

For now, though, you'll have to hold on to your favourite games and practise patience. New games will be released, but not as many as other sports, and not in proportion to the game's popularity. ❑

Better by far

I am considering buying a new computer. At present I own a Commodore C64 and I am considering buying either an Amiga 500 or Atari ST. I have heard a lot about both computers – that is, about how wonderful they are.

I am wondering if you could tell me in your opinion which is the better computer, as I like strategy and arcade action games. Also, I have heard Commodore has released a new computer, the 1Mb Amiga A500P, and I was wondering if you could tell me if it is better than the Amiga A500.

Which is the best computer out of those I have mentioned? Your opinion would be of considerable help.

Imran Hlum
Glasgow, UK

Technically the A500P is a better machine than the A500 because of its 1Mb of chip RAM. However, because of incompatibility problems and the reluctance of programmers to write specifically for the A500P, the A500 looks like your best bet. Forget the ST.

Front man

After reading your reply to B Webb from Middlesbrough in *Strategy Plus 13* that said **Second Front** was still available for the Amiga, I eagerly rang US Gold to obtain a copy. I was then told that all copies in the UK were being withdrawn and returned to the USA, where SSI would then decide whether or not to fix the bugs and re-issue the game.

Mark Ismail
Huyton
Merseyside, UK

*US Gold denies ever saying that **Second Front** for the Amiga was being withdrawn. If you can provide the name of the person who supplied you with that information, then the company promises to investigate.*

Man from Mars

These so-called walk-through articles, typified by *Overcoming Mars Bars* in issue 11, should have no place in a magazine for intelligent gamers.

First, their worth is limited to owners of the games in question.

Second, I am sure that most players of these games are dismayed – as I was – at seeing the complete plot presented in such an unimaginative and mindless manner. Where is the challenge when it becomes all too easy to refer to a spoon-fed, rather tedious walk-through? These articles prey on the weaker side of human nature: the desire of a free lunch.

Please, no more walk-throughs. Helpful hints would be far more productive and constructive and would free magazine space for far more worthwhile articles.

Greg Coglan
Perth
W Australia

Of course, you could always go and pay £8 for a hint book if you don't want a £1.95 magazine which is also laden with reviews.

Baneful experience

Speaking as an old Wizardry hand since the days that it first appeared on the Apple II a decade ago, it's good to see it getting some deserved coverage in a British magazine. The first CRPG of its type, it has been much copied, but to my mind it has never been bettered.

Wizardry 6, Bane of the Cosmic Forge, was a fine product and truly compulsive, but call it nostalgia, I sorely missed some of the features of the early Wizardry games.

One is the lack of a character roster which allowed more experimentation and the laying off of old or ineffective characters. Also half the fun of the game was retrieving a party from the maze intact with items and experience points as the only place to save games was in the castle.

This is my main gripe about most contemporary CRPGs, in that the easy save game feature becomes just too convenient, reducing winning tactics to a series of strategic snapshots. Of course, for convenience's sake we can't expect to go backwards to the days when a teleport trap means sitting at the monitor to the wee hours of the morning, but surely some sort of compromise could be found to bring back some of the nail-biting tension to the game.

As with the automap function in **Might and Magic 3**, which is dependent on cartography skills or a wizard eye spell, the save game could also be restricted by spell, items or location so that it is not a totally unlimited option and integrates more smoothly into the atmosphere of the game.

I suppose the most obvious answer would be not to use it so much, but the sad fact is that most games seemed weighted towards its excessive use and not to save games at virtually every step renders most of them impossible to complete.

Mick Breach
Bromley, UK

Doctor in distress

Your reply to the letter by Dennis Lovell in *Strategy Plus* 15 surprised and distressed me in two ways.

First, the question of soft pornography computer software is one of concern to many people, be they Christians or not. There is an active organization in the UK to combat it – Organization Against Sexism in Software – and it is the stated policy of many computer magazines to refuse advertisements for this type of product.

The strategic element of computer games that you normally emphasize in Strategy Plus does not seem evident in the advertisements for **Sex Olympics** and I wonder whether Free Spirit chose to advertise with you because of difficulty getting other publications to take the advertisement. The views expressed by Mr Lovell are by no means minority ones and your outright ridicule of them is unjustified.

Second, I find it disturbing that respect for people's religious beliefs does not seem to be of concern to you.

I have enjoyed reading your magazine, but if the inclusion of such material persists I, and I suspect many others, will not continue to buy it in the future. Would you if you had young children in the house, as many of your readers will?

Finally, we play good strategy games at night in Cramlington, as I'm sure they do in Logan, Iowa.

Christopher Scott
Cramlington
Northumberland, UK

Odd isn't it, how ads and games that depict and glorify violence pass without a murmur, while anything concerning the harmless and enjoyable activity known as sex immediately sparks arousal. The ad in question justs happens not to be 'politically correct'. Editorial policy is to publish advertisements irrespective of which way the prevailing wind of ideology might be blowing. In other words, readers can make up their minds without us doing it for them.

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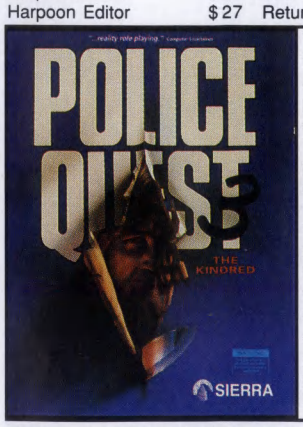

'POLICE QUEST 3' from **SIERRA** is an accurate simulation of police action in an adventure game setting. Follow a dangerous and puzzling trail of brutal cult killings and on the way make sure you 'do it by the book' to keep the criminals behind bars. Features include video-captured human actors with life-like action, **256 color** hand painted digitized graphics, and sound board support. **$34**

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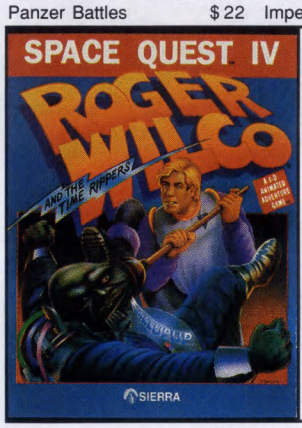

'SPACE QUEST IV' from **SIERRA** is a 3D animated adventure game. Roger Wilco embarks on a trip through space and time to keep the universe safe for fair play, and bad jokes in this fourth chapter in the Space Quest series. Features include **256 color** hand painted graphics, scrolling screens, realistic sound effects, and a rock and roll soundtrack with sound board support. **$34**

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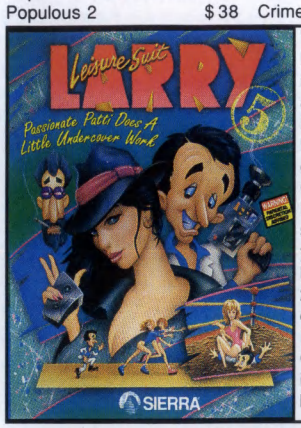

'LEISURE SUIT LARRY 5' from **SIERRA** is a 3D animated adventure game. Help Larry and Passionate Patty take on organized crime, the FBI, and the Citizens Against Nearly Everything in their spiciest computer caper yet. Features include hand painted digitized **256 color** graphics, original score by Hollywood composer Craig Safan, a no typing interface, and sound board support. **$34**

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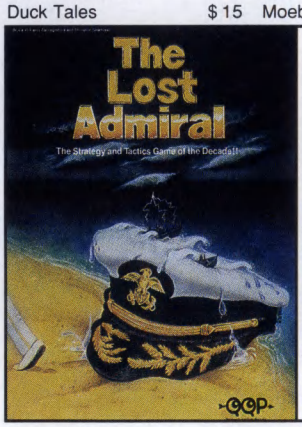

'LOST ADMIRAL' from **QUANTUM QUALITY PRODUCTIONS** is a turn based production naval strategy game. Features 9 scenarios, a random map scenario, 15 campaign games, flagships with special abilities, very strong artificial intelligence, in depth officers ranking system, accumulates your career history as you play, 2 player option, and sound board support. In short better than EMPIRE. **$34**

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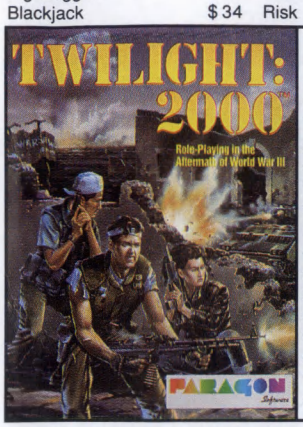
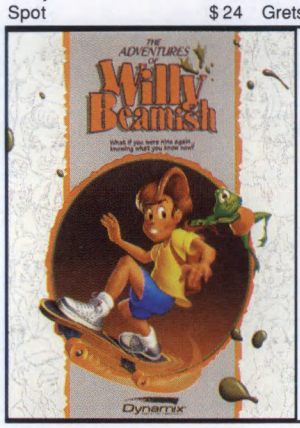
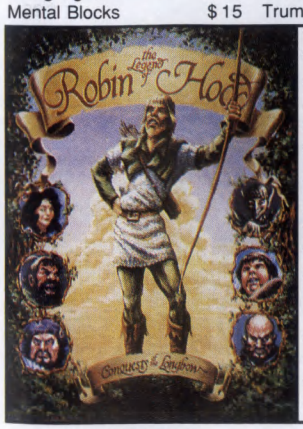


'TWILIGHT 2000' from **MICROPROSE** is a roleplaying game set in the aftermath of **WW3**. Test your leadership skills by commanding a squad of 20. Features individual motivations, values & moral code, 50 attributes/skills, 60 careers, overhead 3D outdoor views, detailed 3D military vehicle simulators, masses of vehicles, weapons, & explosives to kill & maim with. 256 color VGA, adlib support. **$34**



'ADVENTURES OF WILLY BEAMISH' from **DYNAMIX** is an animated adventure game. As Willy Beamish you'll face neurotic parents, a ghostly grandfather, teachers pushed over the edge, the babysitter from hell, a pet frog on steroids, and a plot to blow up the city's sewer system. Features traditional cell animation, **256 color** hand painted scenes, and sound board support. **$34**



'CONQUESTS OF THE LONGBOW: ADVENTURES OF ROBIN HOOD' is an adventure game that gives a feeling for the legend. Richard is being held for ransom by the Austrians. Your goal is to raise money to pay the ransom. You are aided by your marry band and obstructed by Prince John, the Abbot & the Sheriff. Features multiple paths to multiple endings, 256 color VGA & sound support. **$34**

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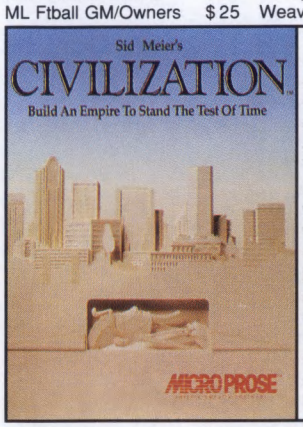
TKO Boxing	$ 6



'CIVILIZATION' from **MICROPROSE** "is a competitive multi-opponent strategy game with a great deal of replayability" **CGW**. You explore cities, continents, and the world in an **EMPIRE** like way. You make economic decisions prioritizing technological growth in order to advance your civilization more rapidly than the other players. The best of both **SIMCITY** & **EMPIRE**. **$39**

'RED BARON' from **DYNAMIX** is the best WWI flight simulator. Take either side, fly 28 aircraft including Albatros D3, Fokker Triplane, DH2 Pusher, Sopwith Camel, Spad 7. Amazing AI, fly against real aces who use historically accurate tactics. Fly multiplane missions vs multiple enemies, single mission or campaign game. VCR with pan & zoom, **256 color** VGA, & sound support. **$34**

IBM SPORTS

Tom Landry Football	$ 29
Tony LaRussa Basebll	$ 32
T LaRussa Stadiums	$ 15
T LaR Teams1901-68	$ 15
TV Sports Basketball	$ 12
TV Sports Football	$ 12
Weaver Baseball 1.5	$ 19
Weaver Commissioner	$ 16
Weaver 1988 - 1989 Ea	$ 16
Weaver Baseball 2.0	$ 32
Weaver Commisnr 2.0	$ 21
Weaver 2.0 1990 Teams	$ 16
World Class Soccer	$ 28
1990 Stats/Mngr Profils	$ 16
Weaver 2.0 Comm Edt	$ 59

'ELVIRA 2: THE JAWS OF CERBERUS' from **ACCOLADE** is a horror fans' role playing game. Find and rescue Elvira from among 3 different worlds, a graveyard, a haunted house and catacombs, then fight a final battle against an entity of awesome power. Features include nearly 4000 locations, fully animated battles, 256 color VGA graphics, over 700 seperate items, and sound board support. **$39**

HINT BOOKS

688 Attack Sub	$ 10
Advnturs Willy Beamish	$ 10
Altered Destiny	$ 10
Bard's Tale 1 - 3 Ea	$ 10
Buck Rogers 1 or 2	$ 10
Castle of Dr Brain	$ 10
Champions of Krynn	$ 10
Code Name Iceman	$ 10
Colonel Bequest 1 or 2	$ 10
Conquests of Camelot	$ 10
Conquests of Longbow	$ 10
Curse of Azure Bonds	$ 10
Death Knights of Krynn	$ 10
Dragons of Flame	$ 10
Drakkhen	$ 10

IBM AD & D

AD&D Bundle	$ 38
Champions of Krynn	$ 32
Curse of Azure Bonds	$ 32
Death Knights of Krynn	$ 32
Dragon Strike	$ 32
Dragons of Flame	$ 12
Eye of the Beholder	$ 32
Eye of the Beholder 2	$ 38
Gateway Savge Frontr	$ 32
Heroes of the Lance	$ 12
Pool of Darkness	$ 38
Pool of Radiance	$ 32
Secret of Silver Blades	$ 32
Shadow Sorcerer	$ 32
War of the Lance	$ 9

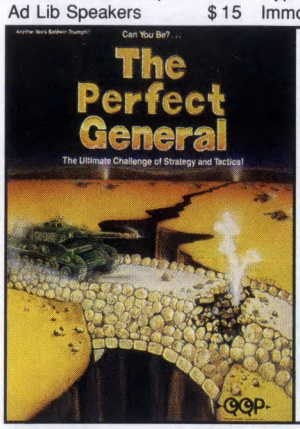
HINT BOOKS

Elvira 1 or 2	$ 10
Eye of Beholder 1	$ 10
Eye of Beholder 2	$ 12
Fountain of Dreams	$ 10
Free DC	$ 10
Gateway Savage Frntr	$ 10
Hard Nova	$ 10
Harpoon Battlebook	$ 19
Heart of China	$ 10
Hero's Quest 1 - 3 Ea	$ 10
Immortal	$ 10
Indy Jones Lst Crsade	$ 10
Indy Jones Fate Atlantis	$ 10
King's Quest 1 - 5 Ea	$ 10
Leisr Suit Larry 1 - 5 Ea	$ 10
Loom	$ 10
Lord of the Rings 1 or 2	$ 10
Magic Candle 1 or 2	$ 10
Manhunter NY or SF	$ 10
Maniac Mansion	$ 10
Martian Dreams	$ 13
Martian Memorandum	$ 10
Mean Streats	$ 10
Might & Magic 1 or 2	$ 10
Might & Magic 3	$ 16
Planet's Edge	$ 16
Police Quest 1 - 3 Ea	$ 10
Pool of Darkness	$ 12
Pool of Radiance	$ 10
Power Monger	$ 10
Puzzle Gallery	$ 10
Quest for Clues 2, 3 or 4	$ 21
Quest for Glory 1 - 3 Ea	$ 10
Railroad Tycoon	$ 10
Rise of the Dragon	$ 10
Run 5 Issue 1 - 20 Ea	$ 6
Savage Empire	$ 10
Search for the King	$ 10
Secret Mnky Islnd 1 or 2	$ 10
Secret of Silver Blades	$ 10
Shadow Sorcerer	$ 10
Simcity/Simearth	$ 20
Simearth	$ 19
Space Quest 1 - 4 Ea	$ 10
Starflight 1 or 2	$ 10
Strategy Plus 3 -11 Ea	$ 8
Strategy Plus 12-17	$ 4
Tunnels & Trolls	$ 10
Ultima 4 - 7 Ea	$ 10
Wizardry 6 Cosmic Frg	$ 12
Wizardry 7 Crusade	$ 12
Yeager's Air Combat	$ 19
Zak McKracken	$ 10

CHIPS & BITS CALL 800 -753 -GAME

IBM HARDWARE

Ad Lib Sound Card	$69
Ad Lib Gold Snd Crd	$199
Adlib Surround Sound	$59
Adlib Telephone Module	$59
Ad Lib MCA Snd Crd	$149
Ad Lib Visual Composr	$75
Ad Lib Speakers	$15



'PERFECT GENERAL' from **QQP INC** is a turn based ground war game. Features 12 years of play testing, great maps in VGA, easy to use mouse or keyboard interface, 14 scenarios, very strong artificial intelligence, hidden movement, line of sight option, in depth player ranking system, saves your career history as you play, 2 player option, modem play, sound board support. **$34**

Flight Stick	$43
Flight Stick w Falcon	$46
Gemini Joystick	$24
Maxx Control Yoke	$59
Rudder Peddals	$39
Mouse 3 Button	$29
Pro Audio Spectrum	$249
Sound Blaster	$109
Sound Blaster Pro	$199
Snd Blaster Speakers	$15
Snd Blaster Voice Edtr	$54
Sound Star Snd Board	$29
Thrustmaster Joystick	$79
Thrustmstr Weapn Cntrl	$79
Thunder Board SndBrd	$84
Thunder Board Spkrs	$15

IBM ROLE PLAYING

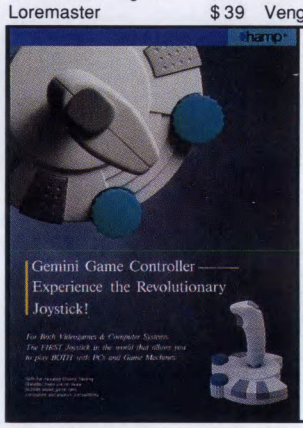
2400 AD	$28
Autoduel	$26
Bad Blood	$31
Bard's Tale 1	$15
Bard's Tale 2	$19
Bard's Tale 3	$31
Bard's Tale Cnstrctn St	$34
Battletech 1 or 2	$31
Blade Warrior	$12
Bloodwych	$42
Buck Rogers 1 or 2	$32
Captain Blood	$9
Captive	$30
CHARACTER EDITORS	$16
Conan	$32
Corporation	$32
Cybergenic Ranger	$32
Darklands	$39

'FINAL CONFLICT' from **IMPRESSIONS** is a strategy game of power politics & global warfare. Allocate resources. Build factories and control food production. Produce armies, tanks, ships, & missiles. Send out spies & conduct diplomacy to uncover military secrets & win allies. Features 95 countries, nuclear winter, optional arcade missile sequence, entirely icon driven. **$34**

Darkspyre	$32
Drakkhen	$37
Dragon Wars	$31
Earthling	$32
Elvira 1 Mistress Dark	$34
Elvira 2 Jaws Cerberus	$39
Escape from Hell	$17
Fire King	$7

IBM ROLEPLAYING

Flames of Freedom	$29
Fountain of Dreams	$15
Hard Nova	$19
Hero's Quest 1	$21
Hero's Quest 2 or 3	$34
Hyperspeed	$37
Immortal	$27
Journey	$12
Keef the Thief	$16
Keys to Maramon	$19
King's Bounty	$19
Knights of Legend	$30
Lord of the Rings 1	$34
Lord of the Rings 2	$37
Loremaster	$39



'GEMINI JOYSTICK' from **A DAN AMERICA** is the first joystick for videogame machines and PCs. A Champ testing disk is included for checking PC configuration. Features include dual-axis trim adjusters for accurate and stable cursor control, high speed autofire, and auto-centering. One joystick switches between PC or the following: Turbo Grafx 16, Genesis, or Nintendo. **$24**

Magic Candle 1	$15
Magic Candle 2	$38
Mechwarrior	$34
Megatraveller 1	$16
Megatraveller 2	$34
Megatraveller 3	$37
Midwinter 1	$12
Midwinter 2	$29

IBM ROLEPLAYING

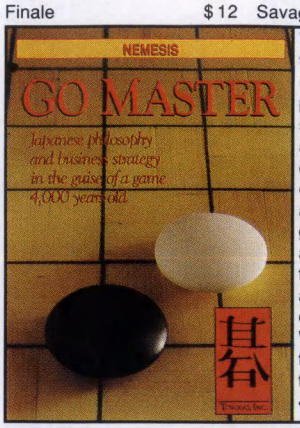
Phantasie 3	$12
Pirates	$9
Planet's Edge	$38
Prophecy 1	$12
Questron 2	$12
Rings of Medusa	$28
Scavengers	$34
Sentinal Worlds	$18
Shadowgate	$31
Sorcerian	$34
Space 1889	$16
Space Inc	$34
Space Rogue	$30
Space Wrecked	$32
Spirit of Excaliber	$29
Starflight 1 or 2	$19
Star Command	$34
Sword of the Samurai	$9
Swrd Samrai & Pirates	$16
Tangled Tales	$21
Terran Envoy	$12
Third Courier	$9
Times of Lore	$28
Tunnels & Trolls	$12
Twilight 2000	$34
Ultima Martian Dreams	$37
Ultima Savage Empire	$34
Ultima Trilogy	$35
Ultima 4 or 5	$35
Ultima 6 False Prophet	$39
Ultima 7 Black Gate	$45
Ultima Stygian Abyss	$48
Uncharted Waters	$42
Vengeance of Excalibur	$32
Windwalker	$28
Wizardry Trilogy	$32
Wizardry 4	$19
Wizardry 5	$32
Wizardry 6 Cosmic Frg	$37
Wizardry 7 Crusaders	$39

IBM ACTION /ARCADE

Airborne Ranger	$12
Altered Beast	$28
Amazing Spiderman	$12
Arachnaphobia	$28
Arkanoid 2	$28
Armor Alley	$27
Artura	$6
Back to the Future 2	$24
Barbarian	$9
Batman	$28
Batman The Movie	$24
Battle Master	$37
Battlestorm	$32
Bill & Ted's Excllnt Adv	$19
Blockbuster	$6
Blockout	$28
Blood Money	$28
Brain Blaster	$28
Bruce Lee Lives	$28
Budokan	$17
Colorado	$9
Continuum	$32
Crackdown	$19
Crossbow	$29
Dark Century	$29
Day of the Viper	$32
D Generation	$32
Dig Dug	$6

IBM ACTION /ARCADE

Double Dragon 2	$15
Dr Doom's Revenge	$12
Dragon's Lair 1 or 2	$38
Drgn's Lair Singe Cstl	$37
F40 Pursuit	$31
Faces Tetris 3	$25
Finale	$12



'NEMESIS GO VER 5' from **TOYOGO** is the ultimate computer GO program. With the simplicity of checkers and the complexity of chess, GO is both an enjoyable recreation and a serious strategy game. GO MASTER is a basic GO player and tutor. JOSEKI GENIUS adds complex corner openings. TACTICAL WIZARD is the ultimate tutor offering in depth tactical analysis. GO is 4000 years old. **$39**

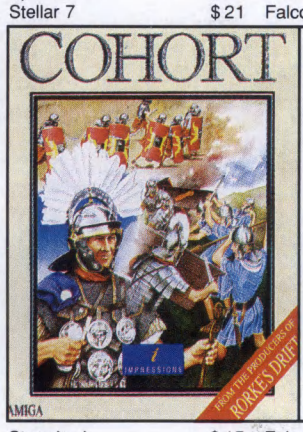
Fire Power	$24
Freakn Funky Fuzzballs	$19
Galaxian	$6
Gauntlet 1 or 2	$9
Ghostbusters 2	$12
Golden Axe	$19
Gold of the Aztecs	$29
Grave Yardage	$12
Gremlins 2	$12
Guy Spy	$32
Harmony	$29
Hard Driving 2	$38
Hare Raising Havoc	$32
Home Alone	$27
Indy Jones Lst Crsade	$19
Killing Cloud	$37
Knight Force	$31
Last Ninja 2	$24
Lemmings	$32
Lemmings Data Disk	$19
Light Quest	$32
Loopz	$24
Marble Madness	$15
Mavel Trilogy	$39
Miami Vice	$28
Monty Python	$15
Ms Pac Man	$9
M.U.D.S.	$27
Nevermind	$25
Night Breed	$15
Night Hunter	$25
Night Shift	$19
North & South	$27
Nova 9	$21
Obitus	$34

'HYPERSPEED' from **MICROPROSE** is a combination 3D space combat simulator and roleplaying game. Pilot a complex starship armed with fighters, kamikaze ships, plasma canon and remote probes. Conduct deep space diplomacy, negotiate with dozens of alien races, make alliances and treaties, each alien race responds according to its own customs and hidden agendas. **$39**

Obliterator	$6
Oil's Well	$21
Out of this World	$34
Pac Man	$9
Pick N Pile	$28
Pinball Construction	$9
Pipe Dream	$19
Powerdrift	$25

IBM ACTION /ARCADE

Powerdrome	$12
Psychic War	$28
Punisher	$12
Resolution 101	$24
Rocketeer	$32
Rotox	$24
Savage	$25
Silpheed	$21
Simpsons Arcade Game	$32
Space Ace 1 or 2	$37
Space Harrier	$28
Space Wars	$37
Speedball	$12
Speedball 2	$27
Stellar 7	$21
Stormlord	$15
Super Off Road	$15
Super Pac Man	$9
Taking of Beverly Hills	$27
Targhan	$28
Teenage Mtnt Nnja Trtl	$24
Terminator	$34
Thexder 1 or 2	$21
Troika	$19
Vaxine	$24
Viking Child	$32
Volfied	$27
Weird Dreams	$12
Welltris Tetris 2	$24
Wild Streets	$31
Wrath of the Demon	$32



'COHORT' from **IMPRESSIONS** is an unusual wargame using a miniatures style interface to cover combat between roman legions & their enemies. Features animated combat & movement, 7 unit types, infantry, cavalry, & archers, user definable army composition, 4 different maps, scenario builder, stop & give orders real time combat, 256 color VGA, & sound board support. **$34**

IBM SIMULATION

688 Attack Sub	$19
A10 Avenger	$43
A10 Tank Killer	$26
A10 Tank Killer 1.5	$34
Abrams Battle Tank	$12
Ace of Aces	$15
Aces of the Pacific	$39
Air Strike USA	$19
Allied Forces Bundle	$39
Appollo18	$28
Armor Geddon	$29
ATAC	$28
ATP	$37
Battle Command	$24
Battlehawks 1942	$21
Blue Max:Aces WW 1	$12
Cardinal of the Kremlin	$27
Carrier Command	$12
Conqueror Multi Tank	$27
Crash Course	$12
Das Boot Submarine	$19
Design yr own Railroad	$34
Echelon	$39
Elite Plus	$29
Eye of the Storm	$32
F117A Nighthawk	$42
F14 Tomcat	$28
F15 Strike Eagle	$7
F15 Strike Eagle 2	$29
F15 SE2 Scenario Disk	$17
F19 Stealth Fighter	$39
F29 Retaliator	$34
Falcon	$34
Falcon AT	$37
Falcon 3.0	$42
Flight of the Intruder	$32
Flight Simulator 4.0	$39
Aircraft Scenry Design	$35
Fly Grand Canyon 3D	$45
Galactic Conqueror Tank	$31
Gunboat	$33
Gunship	$12
Gunship 2000	$39
Harrier Combat Sim	$9
Heatwave	$25
Hoverforce	$31
Hunt for Red October	$22
Hyperspeed	$39
Instnt Facilities Locator	$28
Jet	$12
Jet Fighter 2.0	$39
Knights of the Sky	$29
LHX Attack Chopper	$26
Life & Death 1	$24
Life & Death 2	$32
Lightspeed 1	$29
M1 Tank Platoon	$39
Mantis Exprmntl Fghtr	$37
Mechwarrior	$34
Megafortress	$37
Megafortress Mission 2	$24
Miami Enforcer	$39
Mig 29 Fulcrum	$45
New Facilities Locator	$27
Power Boat Simulator	$39

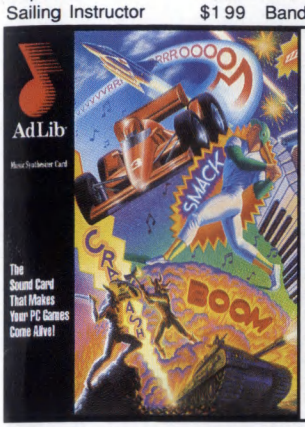
IBM ACTION /ARCADE

Xenocide	$19
X Men 1	$9
X Men 2	$25

IBM MAC & AMIGA GAMES FOR LESS

IBM SIMULATION

PT 109	$15
Red Baron EGA	$34
Red Baron VGA	$34
Red Storm Rising	$12
Resolution 101	$24
Rapcon	$29
Sailing Instructor	$199



The **'ADLIB'** music synthesizer card by **ADLIB INC** adds sound capability to hundreds of existing PC games. Using its 11 different FM synthesized voices, it can reproduce any sound. The standard audio jack allows you to plug in any headphone, boombox, or bookshelf speaker. The Adlib Juke Box playback program containing numerous pre-programmed compositions is also included. **$69**

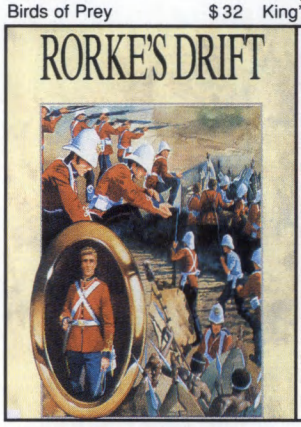
Sailing Simulator	$39
East Coast Voyages	$34
West Coast Voyages	$34
Scenery Collection A/B	$37
Search for the Titanic	$27
Secret Weapons Lftwff	$45
S Weapons Expansion 1	$21
S Weapons Expansion 2	$21
Shuttle	$37
Silent Service 1	$7
Silent Service 2	$34
Startrek 25th Aniversry	$36
Stormovik	$15
Strike Aces	$32
Strike Commander	$45
Stunt Driver	$15
Stunt Track Racer	$25
Stunts	$31
Sublogic Scenery Disks	$22
Tank	$37
Team Yankee	$36
Team Yankee 2	$32
Test Drive 2	$30
TD2 Callifornia Challng	$15
TD2 European Challng	$15
TD2 Muscle Cars	$15
TD2 Super Cars	$15
Test Drive 3	$32
TD3 Road & Car Disk	$19
Their Finest Hour	$37
TFH & BH1942	$38
Thunder Chopper	$28
Thunderhawk	$32
Thunderstrike	$39
Top Gun Danger Zone	$34

'FIRETEAM 2200' from **RAW SOFTWARE** is a strategy game of armoured combat in the far future. Fight alone or command up to 16 armoured units. Over 30 diffferent vehicles with 25 different weapons systems. Features adlib support, 15 scenarios, hidden movement, campaign game, datalink reports from vehicles in your command, line of sight tactical display, and play by modem. **$29**

Tracon	$34
Tracon 2	$29
Ultrabots	$37
Vette	$33
Virtual Reality Studio	$49
Wing Commander 1	$39
WC1 Mission 1 or 2	$19
Wing Commander 2	$45

AMIGA GAMES

688 Attack Sub	$34
A10 Tank Killer	$33
Action Stations	$29
Armada 2525	$39
Armor Geddon	$29
ATP	$37
Bandit Kings A China	$37
Bard's Tale 1	$18
Bard's Tale 2	$19
Bard's Tale 3	$34
Battlehawks 1942	$21
Battle Isle	$32
Battle Tank Barbarosa	$36
Battletech	$34
Birds of Prey	$32



'RORKE'S DRIFT' from **IMPRESSIONS** is a detailed simulation of the battle between 137 British soldiers & 4000 Zulu warriors that took place Jan 22 1879. You command the British in their attempt to hold out against the onslaught. You control each man, standing, sitting, prone, aiming, firing, reloading, running or walking. With 3D map, animated combat & movement mouse support & 256 color VGA. $34

Blue Max:Aces WW I	$34
Breach 2	$24
Breach 2 Scenario Disk	$15
Centurion Dfndr Rome	$34
Champions of Krynn	$32
Code Name:Iceman	$24
Cohort	$34
Colonel's Bequest	$24

AMIGA GAMES

Conquests of Camelot	$24
Corporation	$32
Days of Thunder	$34
Death Knights of Krynn	$32
Dragon Force	$34
Dungeon Master	$28
Elvira Mistress of Dark	$34
Empire	$33
Eye of the Beholder	$39
Eye of the Storm	$32
F15 Strike Eagle 2	$29
F19 Stealth Fighter	$39
F29 Retaliator	$34
FA18 Interceptor	$18
Falcon	$34
Falcon Mission Disk	$18
Fire Brigade	$35
Free DC	$34
Gateway Savage Frntr	$32
Genghis Khan	$37
Gettysburg:Turn Point	$37
Gunship	$34
Halls of Montezuma	$28
Harpoon	$37
Harpoon Battle Sets	$19
Harpoon Editor	$27
Heart of China	$34
Heatwave	$28
Hound of Shadow	$19
Immortal	$34
Imperium	$26
Indy Jones Adventure	$24
Kampfgruppe	$37
King's Quest 1 - 3 Ea	$29
King's Quest 4	$34
Leisure Suit Lrry 1-5Ea	$34
Lemmings	$32
Loom	$21
Lost Admiral	$34
Lost Patrol	$34
M1 Tank Platoon	$39
Manhunter NY or SF	$29
Megafortress	$38
Midwinter	$28
Might & Magic 2	$38
Might & Magic 3	$38
Nobunaga's Ambition	$37
Nova 9	$21
Nuclear War	$34
Overrun	$37
Perfect General	$34
Planet of Lust	$28
Police Quest 1	$29
Police Quest 2	$34
Pools of Darkness	$38
Populous	$34
Populous 2	$38
Powermonger	$34
Railroad Tycoon	$34
Red Baron	$34
Red Storm Rising	$30
Riders of Rohan	$32
Rise of the Dragon	$34
Romanc 3 Kngdm 1or2	$42
Rorke's Drift	$34
Rules of Engagement	$39
Sci Mutant Priestess	$31
Search for the King	$37
Second Front	$37

AMIGA GAMES

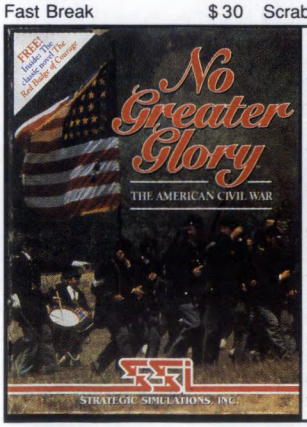
Secret of SIlver Blades	$32
Sex Vixens from Space	$28
Shadow Sorcerer	$32
Shuttle	$37
SIMCANADA GAMES	$36
SimCity	$33
Sleeping Gods Lie	$27

'ACTION STATIONS' from **RAW SOFTWARE** is a naval suface combat simulation. This game covers 1922 to 1945 in amazing detail. Features 21 status displays, 30 scenarios in the Atlantic, Med & Pacific, subordinate comanders, treatment of smoke, starshells, flares, radar, weather, shore batteries, aircraft spotting & more. Ships are modeled in detail. This is the premier **WW2** naval game. **$29**

Space Quest 1 or 2	$29
Space Quest 3 or 4	$34
Spirit of Excaliber	$29
Star Control	$34
Starflight 1	$32
Starflight 2	$32
Storm Across Europe	$37
Team Yankee	$37
Their Finest Hour	$21
Thunderhawk	$32
To the Rhine	$36
Typhoon of Steel	$37
Ultima 4 or 5	$39
UMS 2	$39
Vengeance of Excalibur	$32
Wizardry Bane Cosmic	$39
Worlds at War	$29

MACINTOSH

Ancnt Art of War	$29
Ancnt Art of War Sea	$29
Armor Alley	$32
Bttl Chess	$34
Bttl Chess 2 Chinesse	$31
Carrier Command	$31
Castles	$34
Checkmate	$36
Citadel	$26
Darwin's Dilemma	$32
Design Your Own Train	$32
Drgn Lair	$38
Drgn Lair 2:Time Warp	$38
Drgn Lair Esc Singe Cst	$37
Faces/Tetris 3	$25
Falcon	$34
Fast Break	$30



'CIVIL WAR: NO GREATER GLORY' from **SSI** is a military, economic, political simulation of the American Civil War. Determine the issues of slavery, taxes, inflation, & negro enlistment. Play either side, Abraham Lincoln & the North or Jefferson Davis & the South. Pick your cabinet members & foreign envoys. Move your armies into position & order your generals to take them to battle. **$42**

Go Master 5.0	$36
Grail Quest	$19
Harpoon	$39
Harpoon Challenge Pak	$59
Hoyle's Games 1	$21
Hoyle's Games 2	$21
Ishido	$34
Loom	$29

MACINTOSH

Mission Starlight	$29
Nicklaus Course Disk 3	$15
Nicklaus Course Disk 4	$15
Nicklaus Course Disk 5	$15
Lemmings	$29
Lost Treasures Infocom	$59
Mean 18 Golf	$30
Might & Magic 3	$38
Monopoly	$29
Moonbase	$24
Mutant Beach	$43
Nascar Challenge	$32
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